READINGS OF THE WORKSHOP ON GOVERNMENT POLICY REFORM FOR FORESTRY CONSERVATION AND DEVELOPMENT IN LATIN AMERICA

June 1-3, 1994
Washington, D.C., USA

Edited by: Hernán Cortés-Salas
Ronnie de Camino
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CENTER FOR INTERNATIONAL FORESTRY RESEARCH

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IICA's Editorial Service was responsible for the stylistic revision of this document, and the IICA Print Shop did the cover design, typesetting, layout, and printing.

Workshop on Government Policy Reform for Forestry Conservation and Development in Latin America (1994 : Washington, D.C., USA)
Readings of the workshop / ed. by Hernán Cortés-Salas... [*et al.*] — San Jose, C.R. : Inter-American Institute for Cooperation on Agriculture, 1995.
290 p. ; 23 cm.

ISBN 92-9039-285 1

Publicado también en español

1. Política forestal — América Latina. I. Cortés-Salas, Hernán. II. IICA. III. Título

AGRIS K01

Dewey 333.75098

November, 1995
San Jose, Costa Rica

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BACKGROUND

The Workshop on Government Policy Reform for Forestry Conservation and Development in Latin America took place in Washington D.C., USA, June 1 -3, 1994. The Workshop was organized by the World Bank, the United States Agency for International Development and the Center for International Forestry Research. It had the support of the Inter-American Development Bank and the Inter-American Institute for Cooperation on Agriculture.

The Workshop's objectives were to: i) analyze the main shortcomings of government policy in the region; ii) study the causes of these shortcomings, iii) evaluate the normative measures and reforms governments can adopt to improve the situation; iv) discuss how these measures can be effectively put into practice; v) recommend priority actions to be carried out by the international community, and vi) examine how external cooperation agencies can contribute to the creation of a more propitious environment for the sustainable development of human and forestry resources.

The Workshop was attended by well-known representatives from the governmental and non-governmental sectors, academia, the private sector, and selected international technical and financial agencies. The program, list of participants, record of discussions, conclusions, and recommendations have been published separately.[1]

The present text contains selected documents presented at the Workshop. Opinions expressed in the documents are those of the invited authors and they do not represent those of their organizations.

A large number of persons contributed to Workshop organization, implementation, and follow-up work. Many did so on a voluntary basis. The Workshop organizers are very grateful for their help. A financial contribution from the Dutch Trust Fund (administered by the Inter-American Development Bank) which made this publication possible, is also gratefully acknowledged.

The present volume is available in English and Spanish [2]

1. De Franco, S.; Contreras, A.; de Camino, R.; Cortés, H. March, 1995. Report on the workshop on government policy reform for forestry conservation and development in Latin America. Inter-American Institute for Cooperation on Agriculture, San José, Costa Rica.

2. Copies can be obtained from Ronnie de Camino, P.O. Box 660-2200 Coronado, Costa Rica.

PREFACE

The preoccupation with forest resources degradation in Latin America has led to a number of initiatives for intensifying government action in the sector, through policies and regulations aimed at modifying civil society's behavioral patterns towards forest resources. However, evidence shows that government policies have not led to successful practices and in certain cases these policies have unintentionally intensified forest degradation and deforestation problems.

This volume contains selected documents presented at the Workshop on Government Policy Reform for Forestry Conservation and Development in Latin America, held in Washington D.C. from June 1 - 3, 1994. The objective of the Workshop was to learn from past mistakes and determine effective solutions for the future. Thus, more emphasis was put on future action than lamenting past inefficiencies. Some of the documents are controversial and the reader will notice that in certain cases there are discrepancies or contradictions between the different authors. The editors have chosen to preserve this diversity of opinions, as it reflects the complexity of the issues examined. Therefore, editorial changes have been kept to a minimum and do not modify substantially the documents presented. The diversity of opinions reflect value judgments normally immersed in policy preparation and analysis and in the positive and negative reactions of groups affected by these policies.

Discussions were organized on three levels of decision-making policy – international, national and local – and focused on the diverse actors operating in each level, such as staff of international bureaucracies (both bilateral and multilateral), of government administrative and legislative apparatuses, non-governmental organizations, local communities, indigenous communities, etc. Discussions led to the identification of a number of knowledge gaps and therefore to a valuable basis for organizing a research effort on this complex theme. In summary, the Workshop identified two major efforts that need to be organized to effectively implement reforms for the elimination of policy failures: it is necessary to (i) find effective ways to obtain adequate valuation of forest resources and (ii) increase knowledge on practical mechanisms to design and implement realistic, transparent policies based on increased democratization of the decision-making process.

INTRODUCTION

Hernán Cortés-Salas

Policy failure is a main cause of deforestation and forest degradation in Latin America. Deterioration of forest resources has important negative economic and environmental consequences. It also leads to various undesirable results affecting the poorest of the region. Destruction and inefficient use of forests have been blamed on policies with perverse incentives that lead to local misuse; on national and international policies that lead to an inefficient allocation of scarce entrepreneurial, technological and economic resources; and on the undervaluation of forest products and services in national and international markets. If the forests of Latin America are to be managed sustainably and areas of particular environmental value conserved, changes in local, national and international policies will have to take place. This implies, among other things, a better analysis of policy impacts on the management and conservation of forest resources and of the coalitions and forces that are needed to increase public awareness about the effect of national and international policies and to generate political pressure leading to reforms.

The growing concern about these matters led to the organization of a regional conference in Washington D.C. in June, 1994. The conference was attended by distinguished academics, industry representatives, members of government and international aid agencies, NGOs, lawmakers, etc., and analyzed a variety of subjects. The conclusions, recommendations, list of participants and agenda have been published as a complementary volume. The present document contains a selection of papers from the conference that examine several aspects of the reform process required in the countries of the region.

The complexity and variety of problems and possible solutions; the analytical difficulties involved; and the problems in adequately managing interactions between different sectors and international actions, are reflected in the large number of strategic themes discussed in these documents.

It is clear that to adequately analyze the policy creation and reform process, thorough knowledge and an analytical synthesis is required at all relevant levels. This is a very complex subject. Policy reforms are also linked to democratization and liberalization trends, and to the privatization of many of the functions previously assigned to governments in the region. They are also linked to the recent economic crises and international pressure to save the regional forests, which even raise some

fundamental issues related to Latin American countries' exercise of their sovereign rights. Therefore, the solution of forest development problems, forest resources degradation, and inefficient exploitation, requires a very careful study of possibilities and restrictions affecting policy decisions on the local, national and international level.

The papers in this volume are organized on these three levels: local, national, and international. However, it is first necessary to establish some basic analytical principles:

CONCEPTUAL FRAMEWORK

The conceptual framework is complex. It must be able to interpret the policy formation process; cause-effect policy relationships; the manner in which objectives are defined; and how it's possible to identify the diverse interest groups that are likely to gain or to lose with the implementation of certain policies. The framework must also provide a procedure for researching how individual or group interests and processes can be managed to achieve the "greatest social good." These processes vary according to the political features of the policy environment. This environment can be extremely varied, ranging from extremely open democratic situations to those where authoritarian and dictatorial forces predominate. Situations favorable to policy formulation and reform also depend on the particular political moment, such as at the beginning of revolutionary governments or after the political erosion of a government that has been in power for a prolonged period of time. Other elements that influence the possibility of introducing successful reforms are related to their sequence, the attempt to introduce drastic or incremental changes, the features of related sectors with forestry, the activities of international agencies, and a great variety of other elements. The paper prepared by Contreras-Hermosilla presents a framework for the analysis of these various factors.

LOCAL ISSUES

Deforestation and productive forest use are ultimately the result of individual decisions made in specific communities and localities. Agriculture and forest-use practices such as slash-and-burn agriculture, conversion to pasture, and unsustainable logging methods have all played a role in deforestation in Latin America. These activities are usu-

ally associated with "outsider elements," such as colonists, squatters, and those applying nonsustainable extractive methods. In contrast, many traditional forest communities have developed fairly sustainable subsistence ways that are consistent with the existence and the conservation of forest resources. The importance of working with local people and communities to achieve sustainable forest management has only been widely recognized recently, however. The role of the community and local people's participation can be crucial in protecting existing forests and promoting reforestation of degraded areas. The importance of land tenure security to forest investments has also recently been recognized. Private and community ownership of forests can provide substantial incentives for forestry management that do not exist when governments grant short-term logging concessions or predicate land ownership on agricultural production. Several of the papers included in this volume describe forest management examples based on various tenure systems and forest resources ownership.

Several cases of successful community involvement in forest policy design are reviewed by Brenes. From the three cases, all in Central America, it is clear that community participation in forest policy decision-making is a real possibility, not just a development buzzword. Participation will have different characteristics depending on the circumstances and characteristics of each specific case. However, democratization of decision-making can contribute significantly to sustainable forest use and to community development in all cases. Among the lessons drawn from the case studies are the importance of understanding community perspectives, objectives and restrictions and of identifying the links between local and technical knowledge that create opportunities for participation. Successful cases of community participation serve as models for future efforts and open up political and social spaces that can also be used by other communities. Community participation in forestry policy decisions increases mobilization in many areas, contributes to community self-reliance, and fosters democracy and community creativity in problem-solving. Not only forests are served by such programs, but, more importantly, communities as well.

The Pilot Forest Plan in Quintana Roo, Mexico described by Janka and Lobato, is an example of community participation in policy decision-making. Janka and Lobato point out that past efforts to implement forest conservation plans have failed to a great extent because of the lack of institutional structures and data necessary for effective management. The Quintana Roo Pilot Plan achieved success precisely because it did

not follow the prescriptions of traditional forest policy models. The program started in the early 1980s with just ten communities, but has spread to over 50 communities in Quintana Roo and another 30 in Campeche. Community members have organized themselves into five civil societies for forestry management, employing a total of 30 technicians. Management plans are based on productive use of the forest. Under the community-approved and supported plans and programs there has been a marked deceleration of forest degradation and deforestation. The authors note that sustainable forest management is not self-financing in Quintana Roo. The authors suggest that this condition should be considered as normal in most forestry projects, as many areas have been over-exploited, and the long-term investments needed for forestry are very vulnerable to changes in political and economic circumstances. Nevertheless, the policies supporting local structures can foster sustainable forest use and, with government support, sustainable use can become financially viable for communities.

The government's role on the agricultural frontier is examined in Schneider's paper. Looking at the Amazon frontier in Brazil, his findings contradict myths and beliefs about the effects of government policies that normally guide colonization and the transformation of frontier areas. Transience and farmer turn-over in frontier areas are frequently blamed on poor and degraded soils that are unsuitable for production of agricultural crops for more that just a few years. However, Schneider concludes that economic forces drive settlers with low capital to areas that are of little value to other entrepreneurs with higher opportunity costs. As these areas become more developed, and the presence of government more evident with the securing of land ownership rights, land is sold to landowners with higher opportunity costs. Schneider concludes that offering land to small farmers for frontier settlement, rather than large concessions, is not only a more equitable but also a more economically efficient and orderly way of settling lands. The government's role and policies at the frontier should be carefully planned so that actions take place at the right moment and not prematurely. In areas such as the Amazon, where local, national and international interests clash, it is more likely that intense conflict will materialize, as experience shows. Since frontier economies depend almost exclusively on local action, generalized policies such as those dealing with zoning or forest harvest restrictions will in all probability be quite ineffective. Realism about the political sustainability of reforms is needed. Schneider presents in a very convincing manner the inherent difficulty in determining cause-effect relationships regarding government policies, and the fragility of some of the myths that guide government and international agency actions.

NATIONAL ISSUES

National policies heavily influence decisions about forest use at the local level. National forest policies and other sector policies affecting forestry have tended to undervalue forest resources and promote inefficient use of these resources. Schneider's paper points to some of these links in the agricultural frontier by examining the role of government subsidies in determining the different stages of Amazonian development.

Incentives for cattle-raising have gained notoriety in recent years for their role in promoting deforestation. Similarly, land tenure policies have led to deforestation and forest degradation in many countries. The prevalence of tenure insecurity, rooted in the difficulty of obtaining titles in most countries, has also contributed to forest degradation by reducing incentives and the propensity of entrepreneurs to invest in long-term sustainable forest management. Other national policies have also played a significant role in determining forest use patterns. Apart from cattle ranching policies, agricultural policies have created incentives for investments that displace forests. Trade and other macroeconomic policies often promoted deforestation and forest degradation by undervaluing natural resources. Bias against the forestry sector is reflected in the continuing political and technical weakness of natural resource agencies and institutions throughout the region. The recent wave of structural adjustment programs, privatization, and liberalization will have long-term effects on the sector, although whether sustainable forest management will become more or less attractive economically remains to be seen. These national-level policies are of relevance in all the papers here, but a few address them specifically, looking at policy distortions and recommending appropriate reforms.

Stewart and Gibson look at the range of national policies in the forest and agricultural sectors that have created a bias against forestry in favor of agriculture, and thus in favor of deforestation. Using case studies of Costa Rica, Ecuador and Bolivia, they examine the impact of trade and fiscal policies, as well as forest and land access and tenure policies on economic development. Policies such as log export bans, agricultural subsidies, and government concessions have had overall negative effects. While often it is said that deforestation is a necessary consequence of development, Stewart and Gibson attempt to show that forest resources degradation has not led to economic development. A move toward more neutral policies, ending the discrimination against the forestry sector, would result in greater economic efficiency and make

forestry land use competitive. At the same time, social, economic and environmental goals would also be achieved. In particular, the authors recommend the removal of export bans, wood taxes and land titling requirements and they suggest the elimination of colonization programs that promote deforestation. Forest management incentives wouldn't be necessary, the authors maintain, if policy failures that introduce biases against forest investments were eliminated.

National forest management policies in Central America are reviewed by Johnston and Lorraine. The authors conclude that timber concession policies, forest charges, export policies, private forest management regulations, reforestation and management incentives, and policies on non-timber forest products have all generally undermined sustainable management of forest resources. As policies have normally led to the undervaluation of forest resources in Central America, they have introduced negative elements that conspire against investments in sustainable development. The over centralization in policy-making usually favors special interests. There is also a marked weakness in government institutions that are responsible for the management of national forest resources. National policies do not stimulate sustainable development. The authors recommend policy reforms leading to a greater democratization of the sector through increases in local and community participation in resource management. They also recommend achieving greater transparency in the decision-making process, and greater accountability on the part of all participants in the forestry sector.

Difficulties involved in policy implementation are numerous. Although the formulation of environmental legislation progresses in many Latin American countries, frequently this process faces substantial political obstacles. The lack of effective communication between the executive and legislative branches of Government and between these and the civil society have introduced difficulties in the formulation and implementation of effective policy norms for the sustainable development of forest resources. These obstacles are analyzed in the paper by Urioste. The author points out that corruption and absolute control by some powerful interest groups pose effective barriers to the reform process. In these circumstances it is difficult to reach consensus among the different interest groups and reconcile the entrepreneurs' short-term interests with the long-term preferences of conservation groups. Furthermore, institutions are still extremely weak and, to a great extent, undemocratic. Consequently, civil society has few opportunities for participating in the formulation of the most important policy measures that

condition the management and conservation of natural resources. Legislative procedures, characterized by plenary session approval requirements slow down policy-making. The common result has been a proliferation of vague and extremely broad laws, with little operational value and without the support of complementary regulation. On the other extreme we find a series of incoherent laws that have been prepared in absence of a common and unifying strategy. The lack of quantitative information compounds these problems. At the same time, international agencies have been unable to coordinate their own activities (a theme that is recurrent in the papers by de Camino and Bárcena, and by Centeno), which only contributes to the institutional chaos. International organizations tend to prescribe policies and laws without giving much thought to the difficulties faced in their political approval. Urioste recommends several changes aimed at facilitating the development of adequate legislation related to the management and conservation of natural resources. Firstly, according to the author, it's necessary to create possibilities for the more intense interaction between civil society and the legislative and executive branches of government. Other fundamental factors include attaining consensus, the proper equilibrium of economic interests, the elimination of corruption, and strengthening of democratic institutions. The international organizations should achieve better coordination among them, and be more aware of the fact that in many cases it will be necessary to obtain political support, and in some cases political changes, before natural resources policies can be effectively reformed.

INTERNATIONAL ISSUES

As previously mentioned, livestock policies that sought to increase meat exports to the United States were main causes of deforestation in the region. This is the "Hamburger Connection," as marketing of meat in the regional markets was mainly oriented to satisfying demand for hamburgers. Kaimowitz examines the cause of pasture expansion in detriment to forest resources. He concludes that the hamburger connection no longer plays an important role in Central American countries, mainly due to the contraction of meat demand. However, the expansion of cattle ranching and of pastures continues in several Central American countries even though livestock policies are less favorable than before. Thus, for example, subsidies for cattle production have been largely eliminated, but "getting prices right" has not slowed deforestation significantly. Pasture creation continues, in large part, as a means of claiming and securing land. Land tenure and some macroeconomic policies continue

to promote cattle-raising, despite some changes. For small- and medium-size farmers on the frontier, there are few viable alternatives to ranching, given land tenure insecurity and instability and distance from markets. If national policies are to remove this incentive for deforestation, they must support alternative sources of income at the frontier, imposition of land taxes, land use planning, and closer monitoring of road construction. Greater attention must also be paid to land reclamation and reforestation to restore degraded areas to productivity.

Currently, legislation in the Andean countries, as elsewhere in Latin America, favors agricultural over forestry land use. The document by Razetto examines the situation in the region and recommends a series of measures to reform policies, based on various models that analyze productive forest uses in different locations and subject to different harvesting rates. Forest administration institutions in the region are weak, underfunded, unstable, and are in a low rung of the political hierarchy. They have consequently been unable to control deforestation. The author recommends a policy reform model that includes ecological zoning to identify forests most appropriate for productive use and areas most appropriate for conservation. Forests identified as suitable for productive use should be administered by a consortium of private producers, conservation organizations, and government institutions. Concessions should be conditioned on presentation of a management plan. The most innovative aspect of this policy package is the recommendation that private producers who successfully manage public forested areas should be offered the opportunity to acquire ownership of forest lands. According to the author, the potential social, economic and ecological impacts of such a policy would be considerable. Additional employment would be created, the contribution of forestry to GDP would increase, rural communities would be stabilized, and pressure on natural forests would be reduced while incentives for the sustainable management of productive forests would be created.

According to Keipi and Laarman, who base their analysis on the experiences acquired in preparing a project for financing by the Inter-American Development Bank in Peru, given the range of government policies affecting forestry incentives, natural resource oriented policy evaluation should be a prerequisite for almost any policy reform or project. As a first step, environmental assessment must become a routine and integral part of policy design, policy reforms and projects affecting the forestry sector. However, policy evaluation encompasses more than just environmental assessment or cost-benefit analysis. Successful poli-

cies should be defined in light of their impact on economic growth, social distribution, resource sustainability, and people's participation. Among the obstacles to effective policy evaluation in Latin America is the weakness of public forest administrations. They lack information, funding and adequate administration, and their officials are isolated from the decision-making process; the policy process is thereby controlled by political interests. These weakness will undoubtedly constrain implementation of policies as well as evaluation of their impacts.

It is clear that the international context influences forestry decisions at the national and local levels. At the international level, policies and behavior have promoted consumption of wood products from Latin America, the spread of agriculture and cattle-raising, and the associated forest degradation and deforestation in the region. Centeno examines international trade patterns and concludes that these favor industrialized countries and the acceleration of exports of raw materials from Latin America, making intensive use of natural resources. However, arguments by the international community in favor of privatization and liberalization of trade in the forestry sector postulate that reforms creating greater openness to international markets will increase incentives for sound management. Consumers in the industrial world can take steps —such as certification programs affecting exports from tropical countries— to promote good forest management practices. International assistance agencies can also play a key role in facilitating the adoption of sound forest resources management through support of national policy reforms and attention to community roles in policy decision making and implementation. The great increase in international awareness of forestry and conservation issues in Latin America should provide a strong basis for reforms in international aid programs and changes in consumption and trade patterns for forest products.

Sustainable development and forest management can also be fostered by international assistance. De Camino and Bárcena examine the role of international aid, particularly from multilateral organizations. These organizations are turning away from the traditional project approaches towards a sectoral policy approach, recognizing the impact of national policies and political structures on forest resources. The authors recommend that the sectoral and project approaches be used in parallel. Policy reform is needed to provide a basis for sustainable projects, while projects without a solid policy base would be ineffective on the long term. Other recommendations for improvements in international assistance include the need to obtain greater community participation, to

design incentives for activities with positive environmental externalities, and to integrate project beneficiaries into the more profitable aspects of forestry. At present, international assistance is falling short of promises made in Rio de Janeiro in 1992. The lack of coordination among international agencies has led to duplication and considerable inefficiency. The Tropical Forestry Action Plan failed to induce needed coordination among international agencies. Besides, it is evident that the promotion of sustainable forestry development is constrained by the lack of knowledge of tropical forests management methods. Given these deficiencies, assistance agencies should put substantially more emphasis on preventing clearly nonsustainable development activities. Most importantly, models need to be matched to local realities, national institutions and legislative systems. International agencies should not impose solutions on countries, but work in equal partnership with national institutions and local communities.

World Bank experience with policy conditionalities agreed upon with borrowing countries and their effectiveness are the central theme of the paper by Spears. The author examines three types of policy instruments —regulatory, financial, and institutional— and concludes that conditionalities aimed at introducing policy reforms have been met in just half of the projects approved by the Bank between 1975 and 1984. The most successful cases took place in situations when there was a substantial degree of pressure for introducing such reforms. The Bank was considerably less successful in introducing policy reforms when there was an important opposition to reform or when there was uncertainty about the effects of policy reforms. The author also examines the experience acquired during the period 1985- 1994 when the nature of projects changed towards social forestry, but he concludes that it's still too early to arrive at definitive conclusions regarding the effectiveness of conditionalities in these cases. Spears concludes that it's very important to give additional weight to the analysis of policy effects during project preparation and appraisal, to create interest group coalitions including NGOs and local communities, and to increase coordination among international assistance agencies. The author emphasizes the need to develop more precise impact indicators than those presently being used. He maintains that monitoring and evaluation procedures utilized by the Bank are not adequate to evaluate project impacts on strategic aspects such as poverty alleviation, the sustainable conservation and development of forest resources, and environment. Thus, the author coincides with de Camino and Bárcena and with Centeno on the need to organize a considerable effort to improve the efficiency and effectiveness of international cooperation.

The distinctions drawn between local, national and international issues are evidently artificial. The linkages across political and economic lines and across sectors make forest policy formulation and reform a particularly complex issue. Clearly the international and other dimensions affect decisions about national policies and decisions by communities, countries enterprises, and individuals using forest resources. Global factors and national policies can promote sound use at the ground level, but sound forest management also depends on the technical knowledge and proper valuing of forests by the main actors in forest exploitation and management.

While the papers discussed here reach some contradictory conclusions, the authors stress two common themes: The first is proper valuing of forest resources to ensure that they are used wisely. Policies from land tenure to industrial and agricultural promotion have discriminated against the value of forest resources and have thus contributed to disincentives to their proper management and conservation. The second is the need for increased and more generalized democratic participation in policy design and decision-making, from increased community participation, to better communication between national governments and civil society, to more transparency and cooperation between international agencies and national and local entities. A lack of consensus among interest groups will hinder adoption of effective forest policies. Only with reforms in these areas can the forest resources of Latin America be utilized sustainably.

CONCEPTUAL ISSUES

GOVERNMENT POLICIES AND FOREST RESOURCES MANAGEMENT IN LATIN AMERICA

Arnoldo Contreras-Hermosilla

INTRODUCTION

Latin America's forest resources are being rapidly degraded and depleted. To a great extent this is due to government policies that create biases against investments in forest management and conservation. While clearly this was not their intent, policies frequently produced such results. This is a curious situation. It raises the question of how good policy intentions can so often go wrong, and of what needs to be done to avoid these undesirable results.

Policy failures affecting the management and conservation of forest resources in Latin America and the associated remedial actions are the central themes of this document. The following section describes some of the most common policies affecting the forestry sector. The third section describes examples of how these policy measures have failed to achieve their intended objectives. The next section explores causes of policy failures and the fifth section examines some of the factors that influence the policy-making environment and its processes. The last section summarizes the conclusions and recommendations.

POLICIES AFFECTING FOREST RESOURCES MANAGEMENT AND CONSERVATION

Government can influence the management and conservation of forest resources in a number of ways, including:

1. Directly investing in the forestry sector or in related sectors.

2. Imposing regulations that prescribe or prohibit private sector actions.

3. Influencing private profitability through fiscal, monetary and price policies.

4. Providing services that influence private investment decisions.

First, government can invest in the forestry sector —in activities such as forest harvesting of wildlands protection— or in related sectors such as infrastructure or agriculture. Second, government can also dictate certain actions in the economy. Thus, for example, it can prohibit the export of logs, mandate replanting of harvested forests or impose forest management obligations on privately-owned forests. Third, government can also influence the behavior of the private sector by using taxes and subsidies that alter the levels of private profitability and thus the propensity to invest in management and conservation. For example, it's common to grant plantation subsidies, preferential credit, give away seedlings, share costs, grant export duties draw backs or subsidized prices for public wood. Finally, public policies can also affect private sector behavior by providing services such as land titling, research, and technology dissemination. Table 1 describes the most common policy measures affecting the forestry sector.

In addition to forestry policies, there is a host of non-forestry government policies that have a decisive influence on forest resources management and conservation. Policies in related sectors, as well as macroeconomic policies normally designed with perspectives that have little or nothing to do with natural resource conservation or management, may favor competitive uses of land at the cost of forest resources. For example, policies that favor cattle-ranching or agricultural activities may foster competitive uses of land at the cost of forest resources; macro policies resulting in high interest rates can discourage long-term investments in forestry activities; liberalization policies can increase forest products prices and thus foster forest sector investment; Table 2 illustrates some of the most important inter-sector policy linkages.

The combined effects of these policies determine, either through direct or indirect impacts, individual behavior. Thus, the analysis of policy impacts is a complex undertaking and it is evident that it does not make much sense to try to evaluate the isolated impact of single policies. On the contrary, the policy analysis process must give a great deal of attention to the indirect effects resulting from policy linkages between sectors.

Table 1. Forest policy examples.

Direct government investment in the forest sector or in related sectors	• Roads, port facilities to encourage international trade of forest products. • Forest management in public lands. • Conservation area protection. • Forest plantations. • Forest industries.
Government regulations	• Forest products transit controls. • Prohibitions or other barriers to importing forest products and inputs. • Obligation to replant harvested areas. • Harvesting permits. • Obligation to prepare forest management plans as a condition for intervening in forest areas. • Log export bans.
Fiscal, price or monetary policies affecting the profitability of forest investments	• Taxes or subsidies affecting forest inputs. • Price controls affecting forest products or inputs. • Taxes or subsidies to forest harvesting and/or forest manufacturing. • Forest products sales taxes. • Forest credit. • Cost sharing.
Provision of services that contribute to induce private investment	• Forest research. • Forest extension. • Experimental and demonstration projects. • Delimitation, demarcation, and land titling. • Establishment of commercial contacts and export promotion services. • Technical assistance services related to nursery practices, planting methods, forest management and harvesting and to forestry industry. • Protection against squatters. • Forest fire and pest protection.

Table 2. Examples of policy linkages.

Government Policy/Practice	*Potential Effects on Management and Conservation of Forest Resources*
• Settlement policies	• Deforestation, forest degradation.
• Transport infrastructure policies	• Increase in prices of forest resources due to better access. • Increase in competitive uses of land and conversion to non-forest uses. • Deforestation and forest degradation due to uncontrolled settlement.
• Mining development policies	• Better access and increased competitive uses of land can create effects similar to those caused by expansion of transportation infrastructure.
• Trade policies	• Industrial protectionism policies that lead to industrial processing inefficiency may increase due to the growth of monopolistic forces. Effects on forest resources would depend on the degree of industrial integration and the degree of competition in forest raw materials markets. • Log bans may produce two opposite effects: a) decrease prices of forest resources and profitability of forest management and encourage competitive uses of lands, thus inducing deforestation; b) reduce exploitation of forest resources, particularly in common lands.
• Land delimitation, demarcation and titling • Monetary and credit policies	• Increase in land tenure security may stimulate propensity to invest in forest resources management and conservation. • High interest rate policies discourage long-term investments in forest management and conservation. • Subsidized livestock and/or agricultural credit promote deforestation by increasing profitability of competitive land uses.
• Fiscal policies	• Changes in the propensity to invest in forest management and conservation and in competitive uses of land: alternative fuel subsidies may reduce the demand for firewood; higher taxes on logging would reduce forest harvesting, etc.
• Exchange policies	• Changes in investments in forestry activities that are directly or indirectly related to international trade. Exchange rate devaluation would increase profitability of timber exports.

Table 2. (Cont.).

• Policies that assign land ownership based on proof of land use • Agricultural/livestock policies.	• Incentive to deforest to prove land use. • On the other hand, secure land titles may induce investment in resource management and conservation. • Policies that stimulate cattle-ranching and agricultural activities, such as subsidized credit or agricultural price support and price guarantees, stimulate competitive uses of forest land and therefore deforestation.
• Energy policies	• Increased supply of alternative fuels and reduced firewood use. • Loss of forest resources due to flooding associated with hydroelectric works. Displacement of population may induce further deforestation. • Changes in transportation costs and therefore changes in access to remote forest resources may increase their value and induce forest investment and deforestation (see transport infrastructure policies above). • Environmental charges (such as payment for the protection of watersheds supplying hydroelectric dams) can generate additional funds for forest resources management and conservation.

Examples of policy failures

How can we define a policy failure? What are the factors that characterize "perverse" policies? Policy failures can be defined in several ways. First, clearly, a policy is a failure if it's directed at the wrong objectives. However, in this document we will not discuss whether policy objectives are "good" or "bad" as this implies passing a value judgment on those objectives. Discussions on this subject tend to be sterile and we want to avoid them. Therefore, we will not discuss whether an objective such as the conservation of pristine forest areas is "good" or "bad," for example.

But if we avoid passing judgments about the importance of objectives, how can we identify "perverse" policies? There are some situations when policy failures are not a matter of interpretation or judgment. These are the following:

Ineffective Policies. Firstly, if a policy does not lead to established objectives ("good" or "bad"), then we can say that the policy is a failure. For example, if the policy objective is to control illegal forest harvesting in public lands and if this objective is not attained, then the policy simply has failed regardless of whether we consider this objective as desirable or not.

In Costa Rica, the government applied a *forestry regime* policy to ensure natural forest regeneration or replanting of harvested private forests in critical conservation areas. This policy required the preparation of forest management plans and their approval by the General Forestry Directorate. In practice, the government never controlled the implementation of the forestry regime and therefore the declared policy objective was not achieved. Later, the government tried to generate incentives to the voluntary adoption of the *forestry regime* by granting tax exemptions to forest management or reforestation activities. However, this incentive policy was not effective either because small landowners and landless peasants were not subject to taxation. Again, the policy objective was not attained. These are examples of policies that were ineffective, of policies that did not achieve their stated objectives.

Another example has to do with trade policy. Several countries in the region have implemented log export bans to reduce market pressure and forest harvesting incentives. However, the policy-induced demand contraction led to substantial reductions in wood prices and to disincentives to investment in forest plantations and forest management. Estimates show that this policy led to domestic prices of wood that were as low as one-tenth of international prices (Peuker 1992). Forestry entrepreneurs, seeing their levels of profitability substantially reduced, intensified the conversion of forest areas to agriculture or cattle ranching. The original objective —to reduce forest harvesting— was not achieved. The policy result was totally opposite to the original policy objective. The policy was ineffective.

Inefficient Policies. A policy is inefficient if its objectives can be achieved at a lower cost. This can also be considered to be a failure. For example, there is evidence that aforestation policy objectives in the Brazilian Amazon were possible to attain with a lower level of subsidies than those that were actually granted by the government. The current aforestation incentives in Panama are excessive and unnecessary. In many cases, improved seed selection and nursery and plantation practices —all of which could have been done at a lower cost— would have been sufficient to increase levels of profitability and induce plantations.

Policies that Pursue Limited Objectives. A policy is a failure if it focuses on only one or a few objectives, disregarding others that may be important. These cases are more frequent than one may think. Separate environmental, economic, or equity objectives are pursued disregarding the often negative impact on the objectives that have not been considered. For example, policies with an exclusive focus on environmental objectives and that ignore economic or equity impacts commonly fail, because the groups who are negatively affected by the policies oppose them. In other cases governments pursue social objectives without giving due consideration to their environmental or economic impacts; naturally, environmental and economic interests will oppose such endeavors. Thus, Brazil promoted settlement of the Amazon region to alleviate social pressure elsewhere in the country, without giving due attention to the associated environmental deterioration. The same happened in the case of colonization policies implemented by the Government of Panama to occupy the Darién. These policies soon failed because of their partial focus and the consequent opposition of environmental groups.

Policies that Pursue Unrealistic Objectives. If policy objectives are unattainable, then the policy is also a failure. Again, these situations are more common that one would imagine. For example, various norms in Latin American countries regulate forest concessions, but due to the weaknesses of the public administration (Southgate 1992) these regulations can't be implemented in many cases. Also, in many countries norms exist regarding planting, harvesting, transportation and sale of forest products, but in practice they're so complex that it's impossible to implement them.

Failures Resulting from Inadequate Treatment of Inter-Sectoral Policy Linkages. As mentioned previously, non-forest policies have a very important impact on the management and conservation of forest resources. Past income tax laws in Brazil favored agriculture and consequently corporations and individuals invested in agricultural activities that they wouldn't have considered in absence of such fiscal incentives. The impact from tax exemptions causes land values to rise to levels that put land ownership further out of reach of small farmers. Small farmers sell their land and move towards the agricultural frontier, thus creating additional environmental problems (Johnston; Lorraine 1995). Similar effects are present in Costa Rica where more than 80 percent of deforestation is due to the expansion of agriculture and cattle ranching. In Panama subsidized credit for cattle raising has alone been responsible

for about 7 - 10 percent of all deforestation (Binswanger 1989). Policies that favor cattle ranching at the expense of forest resources are common in other countries of the region (Ledec 1992; Kaimowitz 1995). Road building for the colonization of wildlands —as in the case of the Amazon in Brazil and the Darién in Panama— or for mining or petroleum exploitation as in Ecuador and Bolivia —have opened opportunities for uncontrolled migration and for slash and burn agriculture (Myers 1989). Road building projects are main causes of deforestation in several countries of Latin America nevertheless, the appropriate consideration of the effects of new roads on forest resources is still rare in infrastructure development policies (Mahar 1989).

These policy failures under discussion are not exclusive to Latin America or the forestry sector. For example, forestry policy failures cost Indonesia hundreds of millions of dollars per year (Mahar; Schneider 1994). India sequentially adopted policies that focused on different single objectives: economic, environmental or equity related issues. After a number of years the policy landscape was characterized by a number of inconsistent norms. India also adopted unattainable policy objectives, such as having one-third of the national surface area covered by forest within the next few years, while it was clear that it would be very difficult to just maintain the present forest cover of about 22% (Pearce, 1993; Contreras-Hermosilla 1995). FAO, examining agricultural policies in Latin America, concluded that despite the interactions and linkages between agricultural and macro policies neither sector or macro planners considered them in designing policy actions (Banco Mundial 1993).

Why do Policies Fail?

It is surprising that so many policies, both forest and non-forest, fail as frequently as they do. What are the factors that allow, or even induce, these failures? The following paragraphs examine some of them.

Undervaluation of forest resources. There are market failures that translate into an undervaluation of forest resources. These resources are frequently considered as a "gift of nature" with their market value being determined by extraction costs only and not by the value of the natural capital. Forest environmental and economic externalities are not traded in markets and are therefore disregarded as part of the value of these resources. Since government policies fail to correct these market shortcomings —natural capital values are not calculated in the national

accounts— they also contribute to waste and excessive use of forest resources.

Inadequate Understanding of Affected Groups. A policy is the result of the interaction of a number of interest groups, each with their own values and objectives. Private industry, for example, may try to get the government to improve transportation infrastructure to improve access to forest resources, while local communities utilizing those resources may prefer to avoid industrial uses. The policy finally issued by the government will be heavily influenced by the political power of the groups involved and not necessarily by the "social good." Thus, there will be laws induced by certain groups such as the entrepreneurs, whose objectives will be primarily economic; others that focus on ecological aspects supported primarily by environmental groups; and so on. The problem is that when policies have partial or limited objectives, results are also likely to be partial. Groups affected negatively will tend to resist the application of the policy, thus introducing forces that may eventually lead to eventual failure of the policy.

Difficulty in analyzing policy impacts. In many cases, policies fail simply because it's extremely difficult to predict their final result. This leads to results that are quite different from the intention of the policy. For example, in recent years there has been a great deal of discussion about the actual effects of a log export ban. The intent of the export ban is to reduce total demand by closing the external market and thus alleviate some of the pressure on forest resources. However, it is frequently argued that demand contraction leads to a reduction in wood prices and therefore to a lower level of profitability of forest investments. Investors may therefore tend to opt for alternative, non-forestry uses of land. The original policy objective —to reduce deforestation— may not be achieved; and worse yet, exactly the opposite effect may materialize as investors convert forest lands to other uses. The result of the final policy will depend on the strength of these opposing forces; the reduction of the propensity to harvest forests due to the lower profitability of exploitation activities; and the reduction of the propensity to invest in forest resources due to the lower profitability of plantation and forest management operation investments. It's difficult to predict the final result of these contrasting economic forces. It's also possible that the net result in the case of investments in forest plantations will be different from those in the management of natural forest resources. In this last case there has been no investment to create them. Also, there is debate about the net effect of agricultural intensification on deforestation. On

one side, agricultural intensification reduces pressure on land and therefore pressure to obtain new lands for agriculture through deforestation. On the other hand, agricultural intensification increases the profitability of agriculture and therefore agricultural expansion (FAO 1994). Thus, policies may fail simply because sometimes it's difficult to predict their net effect.

Administrative Corruption. Policies fail because they create opportunities and incentives to corruption. Every time the government issues regulations, the possibility of corruption arises. This possibility increases when the salaries of comptrollers are low, transparency is limited, and monitoring systems are weak. These conditions are present with more or less intensity in the majority of the region's countries. Harvesting permits, the certification of forest management plans that determine access to subsidies, wood transit controls, etc., are examples of policies that open opportunities to administrative corruption and defeat their objectives.

Operational difficulties. Much too often, policies do not give adequate consideration to the practical implications of their implementation. As a consequence, many well intentioned policies fail. The weakness of the public forest administrations in the region is well known, as is the fact that their capacity to implement policies, particularly complex ones, is very limited. It is evident, for example, that forest protection objectives are difficult to achieve because the forest administrations cannot possibly manage the vast areas within the national protected areas systems. The lack of attention to implementation issues is the main theme of the next section of this article.

The Main Elements of a Reform Framework

Given all these problems and policy failures affecting forest as well as non-forest policies, what can be done to improve the situation? The literature contains many prescriptions but, at least in the forestry sector, all have the same defect: they don't give adequate guidelines for implementation. Recommendations normally focus on biological, economic, social or environmental aspects, but say little about *reform process* mechanisms:

> " Although policy analysis techniques for generating recommendations for economic and organizational reforms are well developed, the process by which such changes are adopted and sustained is much less well understood. In the literature that spans political science, political economy and policy science, a large number of questions about change processes remain unanswered, particularly about how agenda setting, decision-making and implementation occur ." (von Amsberg 1994)

In other words, implementation is not considered to be a key element of policy design. Rather, analysts tend to assume that the policy will be effectively implemented somehow. It's widely believed that good policy analysis translates into good policy decisions and therefore into efficiently executed policies.

A framework based on a better knowledge of the process that lead to sustainable policy changes is needed. (Grindle; Thomas 1991) have proposed an analytical framework that is appropriate for the study of the policy process in Latin America. According to these authors, the policy-making and reform process can be conceptualized as based on three main forces: a) the policy-making *context;* b) the *circumstances* prevailing when decisions are made, and c) the policy *features.* Thus,

Policy-making process = f (pmc, c, pf)

The policy making context (pmc) depends on the values, knowledge and experience of the elite, special interest coalitions, and on the historic, administrative, political and economic features of the country. Circumstances (c) vary according to situations characterized as "crises" or as "business as usual." Policy features (pf) determine winners and losers, conflicts and resistance to change either by the public in general or by specific interest groups.

The elites include those who have political power, state bureaucracies, and those who control economic power or have the capacity to mobilize organized pressure groups. Thus, in the case of forestry, the government elite could include the Minister of Environment; the Director of the Forest Service; leaders from other sectors of the government that have an impact on forest resources such as Planning, Agriculture, Livestock, Transport, or Energy; technocrats working in these organizations, and so on. Outside government various groups have political influence, including, for example, forest industrialists, reforestation

groups and cattle ranchers. Migrant cultivators, indigenous communities, colonists, landless peasants, etc., exert less influence. To these we must add the NGO community, both national and international, and international assistance institutions such as the World Bank, the United Nations, etc. All these elites have their own values, experiences, knowledge and political as well as institutional interests. Each group is guided by specific values regarding use, production and management of forest resources, judges them as "good" or "bad," and has a certain inclination to accept or reject specific values and principles that are different to their own. Each group also has a certain kind of knowledge and education, as well as ideology and institutional loyalties, all of which affect their values. It is important to emphasize that most of these values are enduring and generally not easy to change in the short run. For example, certain groups can attach value to the well-being of indigenous groups, while others may give greater importance to industrial production, conserving biodiversity, or the aesthetic values of forests. These values do not change rapidly. It is important to understand these values in all attempts to reform policies because they will have a decisive effect on decision-makers and on the feasibility and speed of those reforms.

Clearly, elites are not autonomous. Their scope of action is limited by what is feasible from the administrative, sociocultural, environmental and economic points of view. We have already mentioned the influence of non-forestry policies that affect the management of forest resources, as well as the institutional restrictions that impose limits to what is feasible. In addition, many organized interest groups exert pressure on decision-makers. These could be commercial groups and interests that could influence elite decision-makers and induce actions such as road building to gain access to forest areas or granting forest concessions in public lands. Other groups, such as small landowners, even if not as organized, may still be able to influence elites. Also, other factors are less tangible but real nonetheless. These include aspects such as dependency relations between Latin American countries and those of the developed world. There is also an important network of contacts with bilateral and multilateral agencies which have their own policy reform agendas. Examples of these influences include structural adjustment programs supported by institutions such as the World Bank and the Inter-American Development Bank that impose policy conditionalities as part of their loans, and influences exerted by the FAO and UNDP through initiatives such as the Tropical Forestry Action Plan, etc. Finally, but not less importantly, historic and cultural contexts also impose limits to what elites may be able to do.

According to Grindle and Thomas (1991); circumstances (c) can be characterized as "perceived crisis" or "business as usual." They argue that policy-making circumstances in crisis situations are very different from those associated with "business as usual." They emphasize that the important factor is the perception of crisis. The crisis may not be real. It is enough to have the perception that a crisis exists to trigger policy actions. In crisis situations there is a greater inclination to adopt drastic measures leading to more fundamental changes than in "business as usual" situations. The public and main power groups agree that "something must be done" to solve the crisis. In crisis situations policy-making tends to concentrate on broader, more macro changes, while in non-crisis circumstances, the tendency is to concentrate on micro aspects and decisions are less important or drastic. In Latin America, crises frequently lead to substantial changes in government policies. These political changes obviously affect the forestry sectors. Also, deforestation and forest degradation are often perceived as crisis situations. This perception has gained acceptance due to the growing public awareness of the negative effects of deforestation and forest degradation. Thus, more intense policy reforms have become more acceptable in the last decade or so.

At a given point in time, policies are in a state of unstable equilibrium. Reforms alter this equilibrium and therefore a certain reaction can be expected. With policy reforms, some will lose and some will win. Policy reform features (pf) and the reaction they generate condition their implementation. Reactions may arise from several sectors, including the public, interest groups, and the government bureaucracy. The reaction of the public normally depends on the dispersion of costs and benefits of a certain policy. Thus, for example, if the policy is to grant subsidies to reforestation, the benefits of such a policy concentrate on those who actually reforest but the cost is dispersed among a large number of tax payers. Such a policy is likely to generate intense support among those who benefit, while opposition from the general public is likely to be rather weak. However, if the output from reforestation enterprises infringes on the territory of established market suppliers, lowering product prices because of the increased supply, it is likely that this later group will react against the policy; the policy effect is more concentrated. Similarly, if the main policy beneficiary is the government, it is likely that the policy will not have a great deal of support as it will not be evident how the policy will affect specific groups. For example, if the government decides to increase the stumpage price, it is likely that such a measure will face opposition from concessionaires but little support from the general pub-

lic: benefits derived from the additional government income would be widely dispersed. From the analytical point of view, the study of groups affected by a policy measure is complicated by the fact that, as mentioned before, policy impacts are not always easy to trace. These impacts become more obvious during the implementation of the policy than during its planning stages and therefore in certain cases one may expect increasing resistance from negatively affected groups as time passes.

Normally, government bureaucracy is also affected by policy measures and therefore it can be another source of resistance. This resistance will be more intense if the policy costs are concentrated and benefits are dispersed throughout society. For example, the reorganization of the Ministry of Natural Resources may imply a major reduction of redundant personnel and therefore ministerial staff will be directly and drastically affected. Benefits of such reorganization may materialize far into the future and affect each citizen only marginally. In this case, intense resistance to policy reform will come from the bureaucracy while the support of the general public will be either weak or non-existent. Eventually the general public may be more aware of the benefits of reform and support it, in some cases overcoming bureaucratic resistance. However, this bureaucratic resistance will materialize in the short term while the support from the public may only take place in the long term. This explains why some policy failures persist despite their obvious limitations.

Conclusions and practical implications

In this document we have argued that there are many policy failures that negatively affect the management and conservation of forest resources in Latin America. While analysts have detected this problem for some time and have issued prescriptions to improve the situation, very little attention has been given to the problem of how to implement such prescriptions. This has meant that many policy prescriptions are never implemented and remain as merely interesting intellectual exercises. Reform processes must give much more attention to the political factors that govern policy formulation and implementation.

We can derive some practical guidelines from the previous analysis. It should be emphasized that the application of these guidelines would

vary depending on the decision-making context. Thus, if a decision has to be made quickly, there may not be enough time to carry out a detailed analysis (however, even a superficial analysis is better than none). Even if there is enough time and abundant resources, the level of detail of the analysis need only be adequate for making an informed decision. The cost and time required to produce the analysis must be balanced with the benefits of informed decisions.

Policy analysts considering formulation or reform of a given policy should assess the following aspects:

1. Likely macro impacts of the policy on: a) economic dimension, what would be its impacts on economic efficiency and other economic aspects which could be of importance to decision-makers such as impacts on the balance of payments, levels of employment and taxation; b) environmental quality aspects such as biodiversity conservation, management of natural resources in general and the quality of water; c) social dimensions such as impacts on the poor, indigenous populations and women. To the extent possible, the economic analysis should attempt to quantify the value of natural capital and the effects of possible depletion and degradation resulting from the policy.

2. Policy linkages. The assessment of policy impacts should include, to the extent possible, an analysis of linked effects on other sectors and with macro policies. Those listed in Table 2 could serve as a useful checklist.

3. The ways in which main groups are likely to be affected by the policy: those that are likely to benefit from, and therefore support, the policy measure and those that will bear its costs, and thus oppose it. This implies identifying elites and understanding their values and interests. The analysis should progress towards obtaining an understanding of how they will be impacted and, in consequence, what their reaction to the policy is likely to be. An assessment of the degree of dispersion or concentration of benefits and costs would help understanding supporting and opposing forces. Among these elite groups, analysts should not forget the bureaucracy of the State, particularly if the policy implementation process is correlated with changes in the bureaucracy activity, structure and staffing, funding and authority.

4. Whether the situation being affected by the policy is one of perceived crisis or one of "business as usual." Drastic (if needed) or incremental reforms can be proposed accordingly. In certain cases analysts may wish to diffuse situations of falsely perceived crisis by increasing awareness of the elites and other groups, such as rural populations, that will be important in the implementation of the policy.

5. The implementation implications and the executing capacity of the State. Policy analysts should also examine the administrative demands of a given policy rule. This should include the administrative capacity of the public agencies to inform the public and evaluate actions that may be part of the policy in question, the ability to issue concrete regulations for the actual application of the policy and to monitor effects and police actions, among others.

6. The possibility that a given policy may lead to increased corruption. There are certain policy norms that are more susceptible than others to administrative corruption. These are characterized by activities that a) take place in remote places away from public scrutiny but that involve important economic values; frequently, this is the case of valuable wood, flora and fauna in national parks, reserves or wildlife refuges; b) are difficult to quantify; the availability of valuable wood in remote parks or reserves is normally not known as detailed inventories are seldom available; c) offer a great deal of discretionary power to unsupervised decision-makers; verification by local plantation establishment officers who determine important plantation subsidies to the landowner is a case in point; d) lead to large procurement orders; if the possibility of corruption is present, then remedial norms must be included in the policy design. These include mandatory quantitative reporting, close monitoring and auditing, stiff penalties for misconduct, and so on.

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LOCAL ISSUES

COMMUNITY PARTICIPATION AND THE DESIGN OF FOREST POLICIES: CENTRAL AMERICAN EXPERIENCES

Carlos Brenes

INTRODUCTION

Has there really been community participation in the definition of forest policies?

This question forms the basis of this document, based on the experience of the Central American forestry sector.

We can identify at least three categories of experiences:

1. Cases where protracted design and implementation negotiation processes have prevailed, making possible the examination of the impact of policies. We will take the example of the CAC, Hojancha, AGUADEFOR (Guanacaste, Costa Rica), and also refer to other relevant cases.

2. Cases in which policies have been recently formulated, and the effects are beginning to be evident. We will examine the FAP-MAYA case in Guatemala.

3. Cases in which the policy formulation process is currently taking place, such as the efforts by the Nicaraguan environmental movement to get a new environmental law passed in that country (MAN, Nicaragua).

With the following objective, we seek not only to identify the lessons learned, but also the characteristics for an investigation aimed at achieving effective community participation in the policy-formulation process:

To identify prevailing conditions in cases where participation was effectively integrated into the policy formulation and implementation process, and also the lessons drawn from these experiences.

The central concept of this paper is human development, which can be defined as follows:

"(Human development)... is centered and based on the satisfaction of basic human needs, the expansion of self sufficiency, and on the organic articulation between man, nature and technology, global processes and local behavior, personal and social interests, planned and autonomous actions, and the civil society and the State.

"..... Human needs, self sufficiency and organic articulation are the pillars of development on a human scale. But to serve their supporting purpose, they must, in turn, be based on a solid foundation: namely, people's participation, as a consequence of favoring not only diversity but also autonomy in the spaces where such participation is feasible. To achieve the transformation of the individual-object into individual-subject of development is, among other things, a problem of scale: participation is not feasible in large hierarchies designed from top down.

Thus, development on a human scale aims at democratic intensification. By facilitating more direct and democratic procedures, it can contribute to creative solutions generated from the bottom up, thereby resulting in greater fulfillment of the actual wishes of the people.

The concept involves three basic principles:

1. Development refers to people, not to objects.

2. Basic human needs are finite, few and amenable to classification.

3. Basic human needs are the same in all cultures and in all historical periods. What changes across cultures and over time is the manner or means used for meeting the needs.

".....(Development on a human scale) is oriented towards the satisfaction of human needs, and achieves self sufficiency. In practical terms, it requires, as an initial force, a policy for mobilizing civil society such mobilization must meet two challenges:

1. Make possible the use of non-conventional resources in building up collective life processes aimed at self sufficiency and the satisfaction of human needs.

2. Make possible the use of local resources so that their impact transcends spatial boundaries to become part of a national coalition. (M. Max Neef, 1986).

Using this frame of reference, we can derive some guiding principles for policy formulation:

1. Stimulate creative solutions originating from the bottom up that strengthen the democratic function of policies.

2. Satisfy human needs; generate self sufficiency and linkages between civil society and the State; generate planning approaches that link autonomy, nature, and technology.

3. Fostering the use of non-conventional resources and at the dissemination of local development approaches —in particular those which are focused on local conditions and lead to different strategies for policy implementation.

KEY ANALYTICAL ELEMENTS (CREATIVE QUESTIONS)

These are as follows:

1. What was the problem that led to the situation in question?

2. What instruments and tools for participation were used?

3. What policy changes took place? Legal, operative, norms, or creation of incentives?

4. What definition of tools and instruments was used?

5. What were the main economic, social and environmental effects?

6. What was the balance in terms of human development —solutions from the bottom up, social mobilization, influence on regional projects and local knowledge?

THE MAIN CASES

Cases where a long design and implementation process involving active negotiation has prevailed and where impacts of such policies have been examined and understood: The CAC Hojancha to AGUADEFOR Process, Guanacaste, Costa Rica.

Although this analysis focuses on the CAC Hojancha to AGUADEFOR example, there are a number of other equally relevant cases such as that of the community nurseries in El Salvador; VXK7-San Juan in San Carlos, Costa Rica; CARE in Guatemala; Coopemadereros in Pérez-Zeledon, Costa Rica; and the forestry pilot plan in Mexico.[3]

A Short Summary: Process and Location

This experience began about 17 years ago in the municipality of Hojancha in Guanacaste, a province in the north pacific region of Costa Rica. The cattle-ranching sector was in crisis, and the degradation of natural resources and the environment precipitated massive migration, deterioration of the productive system, as well as drought and fires.

Local awareness grew parallel to these developments, and an effort to design community responses to problems took hold in the form of a proposal for the integrated development of the budding municipality. Local political forces adopted the forestry theme as the focus of their actions.

Organization schemes —the *Centros Agricolas Cantonales,* or CAC, (Municipality Agricultural Centers)— linking farmers (the civil society) and the State were created. Participation began to occur and the policy process affecting microregions started being heavily influenced by local farmers and peasants.

This process was initiated by various external agents from the State and from other institutions, mainly connected with research efforts, all of

3. The FAO Central American TFAP is preparing a data bank and a publication which will include these and other cases. These bibliographical references focus on mainly technical aspects. However, recently, a series of case studies focusing on the analysis of community participation is also being produced.

which prospered in the local environment. The close interaction with research and technical assistance institutions fed the process of identifying the nature of problems and possible solutions, and the understanding of the decision-making process at the agricultural center level, at the level of the farmer. In its first few years the process led to an increasing awareness at both the local and political levels.[4] Later, the process became integrated into productive systems, particularly in the case of activities for the conservation and protection of forest resources.

At the regional level, there were changes in the strategies of the neighboring agricultural centers and in other productive systems (for example, at a salt cooperative). This had an influence on the Asociacion Guanacasteca de Empresarios Forestales (Guanacaste Association of Forestry Entrepreneurs), or AGUADEFOR, which structured a regional strategy for the development of small producers. The influence of AGUADEFOR, either directly or through the Junta Nacional Forestal Campesina, JUNAFORCA (National Forestry Peasant Group), is undeniable. Several changes in policies related to aspects such as incentives, credit, research, small-scale industrial development, etc., took place. In this case, the process took advantage of opportunities for fostering the growth of local leadership.

Main Features of the Communities Involved

The communities of the Hojancha and other municipalities involved in the process are small and marginal in terms of their social, geographical and economic dimensions. Traditionally, these communities have exported labor, created significant flows of migrants, and been surrounded by large productive units which regulate the utilization of labor during periods of high demand. Communities are intimately integrated with the peasant and his way of thinking; they have a high degree of informal communication and a tradition of production based on cattle ranching. There are groups of young leaders effectively integrated into the different levels of community participation and they have good communication with government agencies. They acquired political influence during the struggle to organize themselves into municipalities. A social directive issued by the Catholic church contributed to the wider acceptance of the process.

4. For further information about this phase see Franklin Murillo's final graduation work for obtaining his Forestry Engineer's degree at the ITCR, who analyzes this process thoroughly.

Primary Participation Instruments

A considerable number of social and technical participation tools and instruments have been used. They have effectively contributed to policy generation, validation and implementation. Among those worth mentioning are community meetings and assemblies where awareness, decision-making and approval are secured. For example, demonstration plots were used to generate evidence and acceptance of adequate forestry practices.[5]

It's possible that a social structure, such as the municipal center, or the integration of local political parties and structures, will create conditions for the implementation of ideas generated by the process described above. In a sense, meetings, workshops, and their insertion in the political system are analogous to goods in the market.

Field days and radio broadcasts, informal communication and contacts with technical institutions generate the conditions and expectations for defining new policies or new positions in the face of proposed policies.

Through these instruments the different participation levels elaborate, gather and develop a community social force capable of assuming responsibility for the implementation of the policy or for taking a leading role in the generation of new policies.

Main Changes

This process suffered progressive modifications as it matured and achieved increased depth, both in a qualitative sense and as it progressed from a local to a regional level. Beginning with technical proposals, there was an impact on negotiation and intermediation levels, on credit systems, and on the legal reforms affecting small farmer reforestation incentive policies.[6]

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5. The most significant case is the testimony of the first farmers recognizing the value of afforestation activities. After several years they decided to harvest the planted trees but indicated that the most important lesson was the need to plant, and therefore would replant, using their own resources.

6. For a thorough understanding of this process, see Ronnie de Camino's **La influencia de una comunidad en la política forestal de un país. El caso de Hojancha, Guanacaste, Costa Rica,** 1989, which presents a description of the specific operational mechanisms used in this process.

It is important to emphasize how this regional initiative (and its leaders) made an impact on policies generating incentives for reforestation, such as the CAF (Reforestation Certificates), promoting CAFA (Certificates in advance) and the latter development of the FDF (Forestry Development Fund. It also assumed a leadership role in negotiations, making use of the lessons of accumulated experience.

Perhaps the most significant development during the last few years were decisions ranging from setting aside $0,25 per kilo of coffee exported by organizations affiliated with AGUADEFOR to finance environmental and forestry operations, to the broadening of operations in new areas. Above all, the process led to the design of new projects and the creation of new conditions for international assistance in the region.[7]

Definition Instruments

These instruments are those directly used by the decision-makers. They include technically elaborated documentary statements, politically and socially supported at the local level. Substantial time, information, technical capacity and close linkages with research organizations are needed for their elaboration. At the same time, field visits by decision-makers are also important to obtain feedback for the design of new policies. As evidence of the importance of this process, we should mention that the highest officials of various research centers, education and environmental agencies, grass-root organizations, international agencies and the environmental press, have visited the area during the last 12 years. The influence of Hojancha on decision-making is twofold: a) the solid technical and practical base and b) the social investment to promote and effectively utilize field visits by decision-makers as a two-way communication scheme.

Main Effects

These can be summarized as follows:

7. For more detail see "Fecundando Suelos", Forestería Comunitaria y Planificación Participativa, prepared by sociologist Rafael Brenes for the FAO FTPP Program, September 1993.

At the economic level: Real income has increased and been sustained in the peasant units through the establishment of a large number of private nurseries. For example, de Camino (1989) indicates that the internal return rate for forestry plantations was 24.3 percent. From a sociological perspective, the most significant result is the creation of an income-generating activity through the sale of plantation goods, nursery products, seed collection and the independent expansion of nurseries.

There has been increasing access to forestry production inputs and to new technologies which reduce the use of local resources and which make production by individual farmers possible.

At the same time, the municipal centers and AGUADEFOR created new technical assistance services. New forest products, such as furniture, were manufactured. Economic strategies became integrated, not only with forestry, but also with regional activities.

At the social level: The social mobilization based on forestry activities has grown and been sustained. For example, the number of reforestation operations increased from around 20 in 1989 to 467 in 1988. If one assumes an average of two hectares per person in all of Costa Rica, forestry planting operations have increased from 172 in 1979 to 2 050 in 1987 (Canet 1989).

At the environmental level: AGUADEFOR has adopted various environmental, wildlife management, education and protection strategies associated with the management of protected areas. The regional landscape shows environmental improvements which are in sharp contrast with what was happening a decade ago.

Two important initiatives are worth mentioning. The first is the creation of a foundation for the protection of the Nosara River watershed. The other one is the decision on the part of the coffee cooperatives associated with the scheme to market export coffee under the brand name "Café Foresta" as a symbol of environmental protection and management. As we have mentioned, the fact that $0,25 per kilo of coffee was assigned to environmental programs made it evident that a certain level of environmental awareness had been reached and that, to ensure sustainability, environmental concerns needed to be linked to productive processes.

Human Development

We can identify four areas of action to set the base for development on a human scale.

First, the **generation of policies from the bottom up, based on local perspectives and traditions and sustained by research,** means that the process was adapted to local conditions and capable of achieving national influence. The approach also deepens the democratic process and reduces the paternalistic role of the State. In the Hojancha case, participants ceased to be objects of development and became subjects of social, regional development with substantial political influence.

Second, **broad and expanding social mobilization** was achieved with the consolidation of AGUADEFOR throughout the province; its expansion to other operations in associated productive units; and by the assimilation of environmental and forestry interests in everyday activities.

We should understand mobilization in both quantitative and qualitative terms, including linkages between personal and social interests, the civil society and politics, planning and autonomy; and as for the advancement of people, not trees and plantations.

The third and perhaps the most important result, is the recognition of the **wisdom of local social and technical knowledge** which allows for the use of non-conventional resources and actions such as the use of $ 0,25 per kilo of coffee for environmental purposes, the propagation of individual seed beds, visits by decision-makers, and the proper integration of local knowledge and organized research with nature and technology. Local and institutional knowledge was not an end in itself but a resource for feeding creative capacity and personalizing activities.

Finally, **the capacity to broaden impact, to have influence beyond community limits, and to generate the social, economic and environmental impacts** mentioned before, is due to several factors: the ability to recreate procedures and use means adapted to local conditions, the ability to tackle problems according to existing traditions, history and objectives, and the capacity to create alternative solutions to common problems. This is the central thesis of human development.

Cases in which policy formulation has taken place relatively recently and the first effects of such policies are becoming evident: The FAP-Maya Case in Guatemala

The following case focuses on the Forestry Action Plan (FAP-MAYA) in Guatemala, but there are several similar cases in the region which should also be mentioned: FECAFOR (Federación Campesina Forestal) in Honduras; the indigenous communities in Panama; community forestry concessions in the Petén (with IUCN support); and the cases of SIAPAZA and BOSAWAS in Nicaragua.

Summary of the Process and Location of the Experience

Although the origin of the process is not clear (the Mayan communities already had a certain influence in the development of the region under the leadership of the Academia de Lenguas Mayas), FAP-Guatemala created the ideal conditions for the generation of a Mayan perspective. Let us examine how this process is described by the Mayas themselves:

" The Forestry Action Plan-Maya, FAP-MAYA, in the context of the Forestry Action Plan for Guatemala and of the Academia de Lenguas Mayas (ALMG), is a forestry and environmental consultative process involving Mayan farmers and women. The consultative process included seven regional meetings and a Mayan forestry congress. In the process, 3000 communities, 1045 representatives, and 150 delegates from different municipalities participated."

Delegates to the National Mayan Congress were chosen in each municipality. During the Congress, delegates approved, modified or rejected proposals prepared by the Mayan Action Plan. The event has historical value because, for the first time, Mayan people were both subject and object of development. For the first time, those who had no previous voice in national affairs devised concrete proposals for their own development. This was the first time in Latin America in which broad action plans were prepared by, and for, the indigenous people.

Although the implementation of this initiative raises hopes, a certain danger may also be associated to the Mayas' lack of experience in implementing this kind of process, and to the scarcity of financial and managerial resources. Because of these limitations it's imperative that

this experience be supported with additional financial and human resources.

The process was complemented by the formulation of the Action Plan and the preliminary commitment of international agencies such as SIDA-Sweden, FINNIDA, the Dutch Government, the WRI, FAO, and the FAP for Central America to lend support to any follow-up action.

These commitments are now being fulfilled. A very relevant action was the agreement between the FAP-Guatemala and several government agencies to lend technical and administrative support to the implementation of projects identified by the Mayas. This agreement was signed on January 3, 1994.

Main Features of the Communities Involved

The process involves 21 communities (mainly in rural areas), seven regions, and more than 60 percent of the Guatemalan population. Communities have different socioeconomic features, but the majority are either poor or very poor. The most important factor is their recent insertion into the Guatemalan political environment which is now more favorable to community development.

Primary Participation Instruments

The main participation instrument in this case is the consultation process. This consultation involves several linguistic communities which represent different cultures and encompasses various ways of interacting with forest resources. The Academia de Lenguas Mayas initiated the consultation process by opening an opportunity for meeting in a democratic manner, and by generating proposals for action. The process was integrated with the Guatemalan FAP and multiplied opportunities for creating proposals and for learning about creating and implementing action plans and for defining specific policies.

The specific instruments used included meetings, visits, workshops, preparation of grass-root documents, group discussions, open meetings and the congress itself. The perspective of the congress was that of "seeing, reading, understanding, proposing and making decisions from a

Mayan perspective, and searching for alternative solutions and useful proposals involving ethical and cultural analyses and traditional values." The process was accompanied by different levels of organizational and political capacities and a willingness to implement follow up actions. During the present phase, a participatory planning process is taking place following the frame of reference and priorities identified under the FAP-Maya.

Main Changes

They include changes in the approaches to identifying, analyzing and planning forestry actions. "The Mayan Way" —a harmonious way of coexistence with nature— became the main principle for action.

At the legal level

The main instrument was the agreement signed by the Agriculture Ministry (MAGA). This document recognizes the cultural diversity of the Mayan people as political and technical subjects, and includes the State's acceptance of a plan for Mayan administration of the international assistance program.

At the normative level

The primary norms include an agreement to assign institutional resources of the Guatemalan State to the support of projects included in the FAP-Maya (for a period of five years). Also, increased weight was given to forestry and natural resources in the design of agricultural and livestock policies.

Incentives creation

The most important incentives were the possibility for government Mayan staff to work on issues related to FAP-Maya and the allocation of about one million quetzales (US$ 180 000) to these tasks. Another important incentive was the effective political support given by the government to a process of forestry policy formulation in which the Mayas were the main actors.

Definition Instruments

These included: a) technical and political proposals; b) organization for negotiating; c) intermediation; d) access to political bodies, decrees and agreements.

The application of these instruments has been fostered by changes in the political scene in Guatemala. These changes created opportunities for an organized social group to include a well developed proposal which genuinely represented their values in the political agenda.

Main Changes

The effects of this plan have just begun to materialize.

At the economic level

Although the government has dedicated increased financial, technical and human resources to this scheme, we cannot yet identify the direct economic effects on the communities involved. The following table describes the set of microprojects supported by the plan.

Table 3. Microprojects submited by linguistic communities.

Projects/Linguistic Communities	1	2	3	4	5	6	GL	Total
Management and rehabilitation of upper watersheds and springs	2	1	1	2	1	1		8
Processing, industrialization and marketing of forestry subproducts	2	1	1	2	1	–	–	7
Education and training in microproject formulation	1	1	1	1	1	1	–	6
Radio education and training	–	–	–	–	–	–	1	1
Workshops	–	–	–	–	–	–	3	3
Preinvestment projects	–	–	–	–	–	–	1	1
TOTAL								26

Source: Plan of Operations, FAP-MAYA

At the social level

The plan was directed to the Mayas, who constitute 60 percent of the total Guatemalan population. The strategy was to implement actions

in leading communities and then extend experiences to the 21 Mayan linguistic communities.

Furthermore, if we examine the table above, we notice that the main actions concentrate on protecting and managing upper watersheds and water springs as well as on education and training. These two categories comprise more than half of the total number of microprojects. Thus, the main objective was to increase community self-reliance.

At the environmental level

The weight given to forestry operations as a means of supporting environmental protection places the coordination of economic and financial aspects together with ecological sustainability (proposed by civil society) in proper perspective. The approach seeks to reach an equilibrium with nature, its potential and its requirements.

Human Development Overview

The indigenous perspective has traditionally been ignored in the Guatemalan political scene. Forestry has opened the possibility of consolidating the Mayan point of view through actions leading to self-government, a return to Mayan basic principles and the elimination of the paternalistic role of the State.

Following criteria presented in this document, we can conclude that:

1. The initiative facilitates actions from the bottom up and aims at achieving the proper integration of social and cultural groups which, in terms of their influence on the policy decision-making process, traditionally have been at the "bottom" of society.

2. Also, the plan facilitates a broader, expanding and more permanent social mobilization process, as demonstrated by the large number of communities (2000) and of leaders mobilized (1045).

3. The appreciation of, and new value accorded to, technical and social local knowledge is without doubt the most important impact of this approach. The policy-making process integrates community values and vision. It is clear that this effort does not only consist of reorienting the decision-making clientele, but also ensures that these deci-

sions reflect the logic, thinking and perspectives of the wrongly-called "traditional clients."

4. In relation to the possibility of influencing actions beyond community limits, this plan has been formulated with a broad and integrating vision. The challenge is to develop instruments which effectively reflect community priorities and at the same time enjoy support at the policy-making level.

Experiences in the Development Phase

There are several important cases which could be included in this category. Many are linked to the activities of NGOs and to experiences of peasant organizations which have now begun to incorporate forestry themes in their areas of concern. Examples are the FAO-Netherlands-IRENA project in Nicaragua; the FAO-Netherlands-IDA project in Costa Rica; the peasant experiences of UNAG in Nicaragua; the Tortuguero project, PACTO, of the National Parks Service and the EEC in Costa Rica; and the integrated management areas project in Honduras. For the present analysis we have chosen the following:

The Nicaraguan Environmental Movement: Approving an Environmental Law

Location and Summary

This is the most recent of all cases discussed in this document. The process, supported by the Nicaraguan Environmental Movement (MAN), seeks to foster broad consultation and participation in the elaboration of an environmental law proposal to be submitted to the National Assembly. At the time the process started, there were already two proposals advanced by the Natural Resources Institute (IRENA), the first dealing with forest resources and the second with mining.

In addition to having the support of more than 50 000 signatures and a group of organizations, the proposal uses an integrated approach to development and the environment.

Between February and May of 1994, the National Assembly decided to initiate a broad consultation with civil society. The most interesting feature of this case is that the civil society actually prepared and submitted a proposal which was eventually accepted for discussion.

Features of the Communities Involved

In this case, we will not refer to specific communities but instead to the various MAN chapters in different sectors and regions of the country that were consulted during the process. The Environmental Commission of the National Assembly is currently developing a second phase which will lead to national coverage. The law will benefit the entire society.

Participation Instruments and Tools

The most important instruments were the preparation of a proposal for discussion, the consultations, and the elaboration of a popular version of the proposal. This served as a tool in the consultation process, which included more than 400 MAN members and more than 12 organizations.

The instruments employed after the formulation of the proposal included: gathering signatures; the presentation of the proposal to the environmental commission of the National Assembly; and a lobby to support the project before the Assembly. The media was also used to support the process.

Main Changes

The main change sought is to "help to guarantee equilibrium between us, human beings, and nature."[8] Changes involve legal aspects, including the right to sue anyone in violation of the law, the obligation of the national educational system to provide environmental education, the norm ruling that at least half the proceeds from the rational and sustainable exploitation of natural resources must remain in the

8. Taken from the proposal elaborated by MAN, and developed in a version aimed at the public. MAN-SIMAS-Nicaragua, 1993.

respective municipality, the regulation of land use, the prohibition of toxic chemical products, the registration and use of the genetic wealth by the State and the fiscal incentives and credit for those who manage natural resources under sustainability criteria.

Definition Instruments

These function on various levels. On one hand, we have the consensus achieved on the proposals submitted to the National Assembly. On the other hand, and most importantly, is the fact that the political structure accepted and adopted a legislative proposal emerging from civil society.

Main effects

Since the process is in the developmental stage, there are no obvious immediate effects. However, it is clear that an opportunity has been created for a community initiative to become part of the legal framework.

Human development Overview

Without doubt, this is a clear case of a proposal being generated from the bottom up, from a local, traditional perspective regarding political and legal concerns but centered on natural resources issues. A broad, growing and permanent social mobilization has materialized out of the proposal process. Throughout this process, there has been an increased recognition of local social and technical wisdom which, in fact, has been one of its main ingredients.

CONCLUSIONS

At the beginning of this paper we asked ourselves whether there has been community participation in the decision-making process in the forestry sector. The answer is positive. This participation is, as we have seen, a process whose characteristics are defined by the specific conditions of the project. We can draw the following lessons from this for future research on the definition of policy alternatives.

1. It is necessary to understand local perspectives or "cosmovision" related to a given policy and start with this frame of reference. Examples are the perspectives of the Hojancha farmers, and, especially, those of the FAP-Maya.

2. When processes and experiences consolidate at the local level, the process can be multiplied. Policies must follow phases of design and consolidation, establishment, expansion and generalization. The point is that there is a need for local solutions and innovations feeding the definition of new policies. Equally as important is the willingness of the policy-makers to accept ideas which originate from the bottom up. An interesting example of this concept is the Hojancha experience where we have seen a consolidation of influence in the decision-making process and in the organization of regional activities.

3. It's necessary to create opportunities. Traditionally, there has been a tendency to start with problems while, as we seen, a common feature of the experiences examined is the use of opportunities. The processes that we have studied all aimed at opening and disseminating new opportunities. Other communities have adapted actions to their own conditions. Thus, a policy must clearly state the opportunities it offers, minimizing control and policing actions. Examples are the Mayan consultations, the access to the National Assembly, the opportunity to establish seed beds and collect seeds, and the possibility of a plan such as the FAP-Maya.

4. The stimulation of social mobilization broadens the social base. This enables communities to solve similar problems. When developments take place in one sector, the whole society is prepared for change. This implies an acceptance of the fact that pre-designed solutions are not always available. Solutions based on local creativity are potentially more effective. The creation of solutions is everybody's task. Meetings, workshops, field days, demonstration plots, and credit and agreements are all mechanisms which have been identified in this paper.

5. Perhaps one of the most important lessons is that it is necessary to establish a clear linkage between local knowledge and formal research. This linkage allows for the creation of effective solutions. The formulation of proposals and practical demonstrations, including productive research results, give an explosive force to experiences

which can be then translated into policies. Thus, a key linkage to ensure local participation is the one between scientific research and local organizations. As we have seen, the three experiences studied have this linkage as a fundamental component. In my opinion, these projects would have been abandoned if this linkage had not been prominently present. Similarly, technical proposals without social linkages won't prosper either.

6. Finally, in these experiences there's been an opportunity to secure a prominent role for the individuals and communities involved, to foster self-determination and self-sufficiency, to deepen democracy, stimulate social creativity for problem-solving, facilitate non-conventional uses of resources, and to secure the development of persons and communities and not that of trees or plantations.

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ALTERNATIVES TO DESTRUCTION OF TROPICAL FOREST RESOURCES: SOME ASPECTS RELATED TO THE EXPERIENCE OF THE FORESTRY PILOT PLAN IN QUINTANA ROO (MEXICO)

Helmut Janka
Rodolfo Lobato

BACKGROUND

During the last 15 years global awareness has increased among the public in general, and scientific community specifically, regarding the importance of tropical forests. The main concern has been the growing destruction of natural resources in tropical forest areas. A broad consensus exists on the following points:

- Any tropical forest conversion (destruction) implies the loss of not only a wide array of products and genetic capital (biodiversity) —whose value is unknown— but also of soil, water resources and of positive effects of forests on micro and macro climates.

- Land use after deforestation often leads to more intense destruction of the region's natural resource base.

- In view of this situation, often judged "irrational," it's generally concluded that policies based on "rational" and sustainable land use alternatives must be implemented.

This perception led to a broad reorientation of tropical land use prescriptions, placing particular importance on multiple use and the integration of the local population into development programs. Concepts such as "ecodevelopment," multiple use, and agroforestry were finally integrated into the idea of sustainable development endorsed by the Rio Conference in 1992. At the same time, there was an increasing awareness of the complexity of social, economic and cultural aspects, and their perspective interactions in the policy decision-making process.

The last ten years also witnessed an unprecedented increase in the availability of financial resources from the international community for forestry-related programs. The last few years have also witnessed the launching of initiatives aimed at increasing international coordination, such as the GEF and the TFAP.

All this has led to increased sophistication in the planning and implementation of strategies capable of adequately integrating these interactions, especially in the case of international agencies. Recent strategies include the explicit objective of optimizing the great diversity of potential tropical forest functions and thus satisfy human needs in ways which are compatible with the conservation of natural resources.

In other words, there has been unparalleled economic, scientific and political support for all actions aimed at solving the problem of destruction of tropical forests.

Despite these efforts, practical results have been meager, particularly if one considers the magnitude of the problem.

These poor results did not happen by accident. Although the orientation of the above-mentioned efforts seems to be valid, their evaluation suggests that the planning and implementation methods typically utilized in these projects are unable to produce the desired results under the circumstances prevailing in humid tropical forests, at least not in most Latin American countries.

These proposals generally assume that an implementation structure is already in place or that one can be created, while in fact, the prevailing situation is characterized by a total lack of any implementation structure and the impossibility of creating one in a reasonable period of time. Worse yet, this void is a fundamental part of the very problem of tropical forest destruction.

Given these assumptions, which are derived from the demands of the "solutions" proposed, the decision-making reality of cooperation projects (or any development project) is characterized by imperfect, biased and untimely information, with scarce scientific value. It is also characterized by a context where access to the problem is restricted and where, in the best of cases, it's only possible to have a foreseeable and desirable influence on few of the many elements conforming a complex picture of interactions (limited capacity to direct). Agencies in charge of implementing the proposed actions are typically a substantial contributing factor to resource destruction.

In these conditions, the substitution of ecotechnology packages for conventional technology, and the substitution of "ecotechnocrats" in the traditional decision-making positions (biologists for foresters) lead

necessarily to development programs that while on paper satisfy the demands of scientifically-based sustainable development, in practice are implemented on a totally improvised basis, except for the required accountability of use of funds.

The above leads us to question, not so much the different elements which form part of the sustainable development concept, but rather their specific translation into a strategy for achieving the rational use of tropical forests. We can conclude that the strategies implemented until now aren't just non-viable, but possibly counterproductive and therefore undesirable.

However, recognizing the high degree of complexity of this problem shouldn't necessarily lead to the design of an equally sophisticated and complex strategy; in the circumstances described above such strategies have very little probability of success. Rather, procedures should be systematically searched for that would reduce the complexity of each case to one or two manageable elements, without oversimplification. They should lead over time to consolidation of practices oriented to development that's increasingly more sustainable.

Using some of the experiences acquired in a project aimed at better tropical forest management by peasant communities in southeast Mexico — the Forestry Pilot Plan of Quintana Roo — as a reference, the following section will illustrate differing perceptions tropical forest sustainable development. We conclude that, more than technical differences, these are basic differences in the way relevant policy design approaches are conceptualized.

BRIEF DESCRIPTION OF THE FORESTRY PILOT PLAN, QUINTANA ROO

In 1982/1983, Quintana Roo exhibited many of the features associated with the destruction of tropical forests in Latin America:

- From the beginning of the century, forestry activities were central to the local rural economy in Quintana Roo. The first operations were conducted by foreign companies, but national companies participated later on.

- From 1957, a large part of the southern section of the state (500 000 hectares) was granted as a concession to a parastatal company which had its own forestry technical professionals. To exploit the forest the company paid ejidatarios to harvest trees; the amount was set by the Federal Agrarian Institution and was well below the market price of timber in that region. In the rest of the state, even if prices were higher than those paid by the company, ejidatarios nonetheless did not have effective control over forest resources. Contractors armed with special forestry permits given by the forest service, which had no control over the operations involved, could obtain wood practically all year around.

- At the end of the 60s, the state's rural economy suffered drastic changes as the colonization process began (whereas previously there had been little population pressure).

- The above meant that, on one hand, peasants —being excluded from forestry operations benefits— expanded their agricultural operations by clearing forest areas with support from official programs. The timber companies continued harvesting the same volume but in progressively reduced areas, leading to over exploitation and to violent conflicts between concessionaires and peasants. This resulted in peasants considering the Forest Service —in an atmosphere of generalized institutional anarchy— to be identified with the interests of the concessionaires.

In view of this situation the Quintana Roo government conducted a series of studies aimed at finding solutions to the above mentioned problems. A new forestry policy was designed and implementation began in 1983, at the end of the forestry concession. It's main objective was the creation of conditions to ensure conservation and adequate management of forest resources.

The new forestry approach, which initially embraced ten peasant communities and a permanent forestry area of about 100 000 hectares, has been expanded to about 50 communities and nearly 400 000 hectares —which is to say, 90 percent of the state's forestry lands. In the neighboring state of Campeche in the region bordering the Calakmul Biosphere Reserve, some 30 communities have been operating for the past three years under principles that are similar to those of the Quintana Roo scheme.

Beyond the economic, social and political importance of forestry for these communities, it should also be mentioned that the forestry communities, which are organized in five civil societies, have their own forestry service with a staff of more than 30 technicians who are recognized by forestry authorities.

In short, a new forestry practice was initiated in 1983 with new actors and with a clear trend toward the deceleration of the destructive processes observed until then. Despite its many limitations and marked differences between the communities, this experience has generated its own dynamics, is increasingly important, and is a reference point for the entire Mexican southeast, and for some Central American countries as well.

In the following sections, we will describe some of the most relevant aspects of the Quintana Roo experience as a way of illustrating the basic differences in design and implementation strategies for sustainability. These differences may, in many cases, be critical to the success or failure of forestry programs.

THE MAIN ACTORS IN THE POLICY-MAKING PROCESS AND THE "COUNTERPART" PROBLEM

Traditionally, the road to change in forestry practices is the formulation of a new forestry policy by a government institution and the design of action plans for the execution of the norms of the new policy. The government forestry institutions are normally the counterparts of the international technical assistance agencies. It is generally expected that through assistance programs, credit, and training there is a possibility for effective policy implementation. In this context, pilot projects have as an objective generating experiences which can later be used for consultation and designing new policies.[9]

9. Assistance agencies have recently recognized the complexity of socioeconomic, political and institutional interaction and this has led to the integration of non-forestry agencies in a wider structure of national counterparts. This means that those responsible for the programs must now work not only with forestry institutions but also with other agencies which are related to the problem at hand. In this –more diversified– context, pilot projects also have the objective of generating more realistic –and more complex– information to feed advisory programs.

The strategy followed in the case of the Quintana Roo Pilot Forestry Program is totally opposite to the strategy described above. The starting point is the recognition that the destruction process in tropical areas isn't accidental, but rather the normal case, given the economic, political and social conditions prevailing in tropical countries. Therefore, it cannot be expected that a better understanding of the problem on the part of government institutions and improved training of their staff will bring about a substantial change in the process of the destruction of tropical forests. We must add to the above the fact that the planning and implementation process is typically not very transparent in the case of official agencies; or, in any case, not transparent enough to allow for the monitoring of eventual changes in this trend. The traditional focus and procedures via traditional institutions, from this perspective, is a "mission impossible."

Departing from the "conventional" procedure, in the case of the Forestry Pilot Plan, support and expansion of the Pilot Plan is the objective *per se*. The Pilot Plan was not conceived as an experiment to provide information to improve assistance to official institutions. Its main feature has been the support it provides to a group which, as shown by a previous analysis, had direct interest in the long-term sustainable forest management and, above all, the capacity to create a geographical control system which would allow for the defense of forestry areas against other uses. In the case of the Forestry Pilot Plan, this group is composed of the peasant communities. There is no particular reason to think that official institutions could fulfill this role. For the same reason, official institutions are not viewed as vehicles for the transmission of information to other regions.

Different from other "conventional" experiences, the experimental feature of the Plan is needed to create a "free or open space," with the tolerance sometimes lacking in the official institutions, to redirect forestry practices. The objective was to use the pilot project as a basis for creating a new forestry practice whose principles would eventually dominate and change official institutions by increasing political and economic importance.

With regards to the proposals requested by the Government of the State of Quintana Roo, two[10] have been proposed for the continuation of

10. The ones presented by a foreign forestry consulting group and the ones elaborated by the forestry institution itself.

traditional forest activities but under new legal and administrative arrangements. These two proposals set aside traditional forestry activities for traditional groups that have normally depended on these types of activities; they had very little chance or interest in influencing the destructive processes that were taking place. The outstanding feature of these proposals was the attempt to keep peasant communities away from main forestry activities by engaging them in secondary or subsidiary activities that had already been proven to be economically unfeasible in the region. Of course, all these proposals were "scientifically sound" and were oriented toward improving the living conditions of local populations.

The proposal which finally formed the frame of reference for the Forestry Pilot Plan was formulated by a group that was not involved in the forestry institution nor its professional association. It's interesting to point out that the reorientation of forestry practice came from the Quintana Roo State Government and not from forestry institutions.

The readjustment and accommodation process affecting the main actors in the case of Quintana Roo can be characterized by three phases:

- During the first phase of the Forestry Pilot Plan, one of the main concerns was the possibility of broadening the opportunity for redirecting forestry practices within traditional forestry institutions. The governor and undersecretary of the institution had to make ad hoc decisions. Equally as important was the creation of a group ad personam, committed to these new approaches and able to implement forestry activities involving and benefiting peasant communities. Efforts were oriented toward enabling peasant communities to handle the forestry business and to, above all, neutralizing the influence of the traditional forestry institution and any other traditional interest groups operating in the area of the Pilot Plan. During this first phase the possibilities of redirecting forestry practices and other actions depended exclusively on the personal capacity of those individuals who were committed to the scheme.

- During the second phase, economic success, combined with the growing political influence of the groups involved in the Pilot Plan, made possible the organization of their own institutional structure, which allowed them to progress from the first phase (characterized by personalized support). A civil society was created with the "eji-

dos" that had participated in the Pilot Plan. This society hired the former operational group to direct technical forestry operations. An opportune change in the forestry law made this possible. It's necessary to emphasize that the group promoting changes had no intention of extending this "solution" to other regions. Instead, all these changes were conceived as transitory measures to face specific problems during the first phase and to strengthen this group of forestry communities. The principal objective was to consolidate institutionally the ground gained in the first phase and strengthen the organization's own internal structures.

- During the third phase we can observe impact that transcends the original area of influence of the Pilot Plan. The dissemination of the experience created a qualitative change that went beyond sectoral limits and towards a more regional concept.

In the strategy of the Pilot Plan, and contrary to traditional practice, the main objective of the technical assistance and advise offered to the official institutions isn't to train and prepare them for a new general forestry policy. Rather, it's to increase their capacity for improving conditions for the successful implementation of the new policy in the area of influence of the Pilot Plan. Differing from traditional technical assistance approaches, which rapidly become entangled in the complex bureaucratic processes due to the lack of clear criteria which would allow proper feed back, in the case of the Pilot Plan, technical advise is highly-selective, with immediate feedback. The criteria are based on what in that particular moment is considered favorable to the implementation of the Pilot Plan.[11]

INTEGRAL FORESTRY PLANNING

The integral forestry planning concept aims at understanding tropical forests' multiple functions (present and possible) and making them compatible with the socioeconomic context. As a tool, integral forestry planning assumes previous knowledge of the management system to be applied, or at least of the ecological interactions among the various

11. From this point of view, the recommendation that the high complexity of the social, political, economic and institutional processes be taken into account does not necessarily imply progress, as compared to the previous situation. In an integrated development approach, this recommendation may contribute, rather, to making the objective of generating impacts through advise and financing on institutions unfeasible in order to enable them to change their policies. What is needed is a deliberate focus on what is possible rather than on what is desirable.

ecosystem components. Furthermore, it assumes that there is a possibility of affecting those variables which are considered important in the planning process. All these conditions do not materialize in the "normal" reality of tropical forests.

In point of fact, in the majority of projects, the objective of achieving optimum use of tropical forests appears to be unrealistic. In most cases, the desire to achieve integral use and to have a solid scientific base as the departing point for field actions,[12] leads to unexpected obstacles during project implementation, and improvised actions which speed up the destruction process rather than retard it.[13]

Differing from the approach that takes "integrality" and optimization as the basis for designing field actions, the Pilot Plan procedure consists in gradually building up the desired levels of integration according to the specific conditions faced.

In the following sections, we will attempt to describe the Pilot Plan process that leads to a gradual expansion of integral/sustainable actions.

This process can be divided into three phases.

1. During the first phase the most important objectives were to achieve a stabilization of the destruction process in the area of influence of the Forestry Pilot Plan, and to satisfy, within these limited conditions, the minimum requisites for a first attempt to implement the concept of integral forestry management. To achieve these objectives the following actions were important:

    - The management and the land tenure unit were able to coincide. This approach sought to ensure uses that generated regular income for each "ejido" with the "ejido" as the center of planning and decision-making.[14] Starting with the Pilot Plan, the planning process took place ejido level.

12. These conditions are often demanded by forestry laws and technical cooperation agencies.

13. In the case of tropical forests in southeastern Mexico, there is a long list of projects with this orientation that have failed, projects which had broad scientific, political, economic and institutional support.

14. This may seem trivial, but we must note that during the previous period at the beginning of the implementation of the Pilot Plan, the concessionaire enterprise used to operate arbitrarily in the different lots because the unit of forest management was considered to be the totality of the forested area. This had the effect of generating community incomes which were very uneven and uncertain for most rural communities.

- The delimitation of permanent forestry areas by the "ejido" populations. As a first step in the management process, each permanent forestry area was divided into twenty-five areas for annual harvest. We must take into account that at that time there were no forestry inventories available, technicians had no first-hand knowledge about the forest, species growth and mortality were unknown, and harvesting was conducted by peasants who had insufficient experience in these types of activities. But at the same time, these conditions allowed the definition a *contrariu sensu* of the non-forestry area. This imposed boundaries on the working universe. Forest areas outside the permanent forestry area would not be subject to management. There was no interest in managing the "ejido" as a farm unit but in managing the permanent forestry area.

Therefore, this initial situation was opposite to the integral use concept. The steps taken, however, were critical in the later development of management trends, since management of forest without boundaries is senseless. The transition from the forest as "no-man's land" (the simple land reserve of the ejido) to the forest as good for common use, with its own administrative regime, was achieved.

For the first time in the Mexican tropics, the forest production concept was employed (forest resources managed under certain criteria) among peasants. This step was considered so important that it was included in the forestry law regulations.

Going beyond selective harvesting, a procedure that characterized forest exploitation in the region; certain actions were undertaken to ensure the introduction of new species in the market. This also implied a step towards forest management. In the case of traditional harvesting, a large number of species were not marketable, which led to non-sustainable management. Furthermore, the degree of forest alteration resulting from selective harvesting is minimum and therefore it does not generate favorable conditions for silvicultural practices.

The criterion for introducing new species in the market was necessarily pragmatic: those species which had better acceptance and could be processed easily were promoted first; any sale, by consolidating markets, facilitated the adoption of management principles.[15] This was

15. We must take note that at the beginning of the implementation of the Pilot Plan, there was no truly established timber market in the region, not even for valuable species; and that the creation of such markets by peasants took considerable effort as weel as many confrontation.

another not-so-ideal situation which was far for ideal, in terms of integrated use, but one that required a pragmatic response.

For the *assessment of harvestable volume*, a measure was adopted for carrying out an inventory in the harvesting area, and applying for a permit based on available harvestable inventories. These measures were light years away from integral forestry as well. But in terms of methodology, meeting this requirement meant the adoption of two previous steps (the delimitation of the permanent forest area and its partition into 25 annual harvesting plots), steps which did move toward management.

From the integral management technical point of view, nothing relevant was achieved in the first three years of the Pilot Plan. As a consequence, a substantial number of forestry "experts," both national and international, together with individuals from the traditional forestry service, became bitter enemies of the Forestry Pilot Plan. From the point of view of the creation of conditions for forest management, a new actor appeared (the forest owners), forestry areas had been delimited, thus making forest management possible. Minimum management practices had been adopted and, even more importantly, peasants had entered into the forestry business.

2. During the second phase the following steps took place:

- *The forestry inventory was initiated.* Ejidos were relatively capitalized and the forestry inventory was considered a planning instrument and not a whimsical, formal requisite imposed by technical groups.

- *Development of a computer system.* This opened opportunities for the utilization of inventory data and for planning harvesting areas. In addition to serving the needs of technical forestry, this proved to be an important step towards decentralized management of information and decision-making. These were important developments in an environment that was characterized by a high degree of centralization and bureaucracy.

- *Management Plan.* Given the fact that data were typically not available (including aspects such as rates of growth, mortality, etc.), management plans were developed on the basis of a series of assumptions.

3. The third phase was initiated with the establishment of permanent observation plots and a recording and evaluating system specially designed for this purpose. The approximately 300 plots already established provide a wealth of ecological and silvicultural data. At the same time, new inventories were initiated with the purpose of eliminating some of the problems observed in planning and implementing forest harvesting. The ejidos considered the costs as an investment toward more sustainable management.[16]

From this perspective, the concept of integral forest management, more than being supportive of tropical forest development, constitutes an obstacle. Presented as a *summum* of what may be desirable, it constitutes a step backward as compared with the previous situation, since it introduces more obstacles to the already complex bureaucratic procedures as well as makes it difficult for the forest entrepreneurs to develop management systems.[17]

The alternative is sound, realistic silviculture which would take into account socioeconomic conditions for the sustainable use of the tropical forest, progressing slowly but surely towards the development of management systems relevant to the particular conditions of the site in question, the on-going review of the work plans and giving more importance to the practical problems of space management and localized application of silvicultural practices, rather than the paraphernalia of the integral forest management plans.

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16. A specific connection with the new Forestry Law should be mentioned. Unfortunately the approval of the Regulations of the new forestry law created new complexities for achieving flexible development and progress towards integrated approaches. Permits were subject to the preparation of integrated forest management plans. This meant that what until then had been a discussion about methods, was now a regulatory obstacle. Even though it has been said in several fora that the norms for the application of the forestry law took into account, among other things, the Pilot Plan example, in fact, they took very little or nothing from its strategy and in practice reverted to the old practice that isolated the forest from the socioeconomic context.

17. This leads to institutional self-satisfaction and simulation. It is maintained that integrated forest management is taking place because this is fashionable and because it is required by the forestry and/or ecological laws. In reality, everybody knows that by imposing unfeasible preconditions, the application of this concept is limited to following bureaucratic norms for the preparation of management plans totally divorced from content and reality. In the majority of cases, what is called a forest management plan is limited to the titles in the cover of the planning documents.

The steps described indicate that in principle it is possible to adapt the technical requisites for more sustainable management to the non-technical circumstances so that, as a whole, conditions leading to sustainability may materialize over time. The adequate interpretation of these inter-relations and the real possibilities in each specific case, constitute formidable challenges in the process of creating development policy for controlling the destruction of tropical forests. The challenge is also in managing always complex reality in such a way that it's possible to implement one or two viable measures that move in the direction of more sustainable management practices.

THE SUSTAINABILITY OF THE PROCESS INITIATED UNDER THE FORESTRY PILOT PLAN

From the perspective of the Pilot Plan, advances aren't measured principally in terms of "sustainable development" as the final outcome, but in terms of changes in the destructive, uncontrollable processes which may eventually lead to more sustainable management. What is important is to foster and maintain the process of change.

In the strategy of the Forestry Pilot Plan, peasant groups are given special importance as engines for this process. It's important to focus on this function in order to be able to understand the limits and problems related to the strategy.

On one hand, it is assumed that peasants will be interested in conserving forests only to the extent that forest harvesting is an economically attractive source of income. Otherwise they would destroy the resource. On the other hand— and this is perhaps more important —in the prevailing conditions in tropical forest areas, peasant communities are probably the only groups capable of establishing and managing a system for area control (in the context of each one of the communities) that permits defending forest areas from other uses which require forest destruction.

There's general agreement that there are more possibilities of success in establishing a system for controlling soil use if it is established and managed by peasant communities rather than by public institutions or private enterprises, which have demonstrated to be ineffective in the past.

From the point of view of public interest in conservation of tropical forests, what matters is not productive forestry activities but the creation of an area control scheme. Forest harvesting under conditions of the Forestry Pilot Plan seems to be an appropriate instrument for achieving this result, to the extent that it can be developed in a socially coordinated and systematic manner and within a structured space.

In this sense, from a global perspective, forestry is seen as an appropriate means to organizing a conservation system, based on a capacity to foster social organization and with economic convenience as an agent for self-organization.[18]

The Pilot Plan was not conceived as a market-oriented forestry production system or to generate foreign exchange. Although its success depends to a great extent on its capacity to function as a market-oriented and industry-related system, its main feature (which justifies wide external support) is that the particular way in which it utilizes forest resources is the best way to conserve them, given present conditions.

This strategy is sometimes presented as being self-financing. It's now necessary to discuss this erroneous interpretation.

- No where in the world are there sustainable management schemes for natural forests which are self-financing. Particularly in developed countries with high productivity natural forests, this activity is substantially subsidized.[19]

- The case of the Pilot Plan faces unfavorable conditions. Forests given to peasants have been typically overexploited. In addition, there is insufficient knowledge and no proven organizational schemes which guarantee sustainable and economically-attractive management. Expecting self-financing under such conditions means expecting income from an over- exploited forest managed by an inexperienced group with reduced market access. These groups are also expected to finance forest harvesting and technical research, research which is needed for sustainable management and has not been provided by the official forestry research institu-

18. As shown in the implementation of a number of protected area schemes (e.g., biosphere reserves) neither official institions nor NGOs have enouth capacity to organize in an efficient and economic manner these spatial control strategies.

19. According to official figures in Germany, community forests show an average loss of 245.-/ha per year, from which some 129.-DM/ha are covered yearly through subsidies.

tions with their substantial budget and numerous researchers. In addition, they must finance their own forestry services when the official forestry service supports activities which tend to be opposed to forest conservation.

- Thus, it is not realistic to think that peasants will be able to finance by exploitation all these activities that should be carried out to ensure sustainability. However, this has been the expectation of the official development and aid agencies, whether national or international, with the added requirement that all these activities must have a scientific basis.

- In the case of the Pilot Plan, forest harvesting operations so far have been self-financing. In the case of mahogany ("caoba"), there's a possibility for profit (considering extraction costs only) which varies substantially from community to community. The harvesting of "common woods" which can cover the costs of their extraction is interesting from the point of view of the creation of employment.

- The substantial reduction in the volume of authorized extraction in the case of mahogany (only one fourth of what was authorized when the Plan initiated) and the associated reduction in income has been compensated for in part by the operation of a budding forestry industry in the "ejidos" fostered by a number of official programs, the effects of which have been difficult to predict and administer. This is particularly so in the case of the forestry technical service, officially the responsibility of the Civil Societies.

The original plan planned for the self financing of this service by means of quotas paid by "ejidos," in proportion to the volume of authorized harvesting. This practice turned out to be counterproductive, because on one hand it required substantial reduction (on environmental grounds) of the authorized volumes for the economically most attractive species, mahogany, while on the other hand it led to the expansion of technical forestry service functions needed to ensure sustainability of harvesting operations.

The technical forestry service, in fact, has only been partially financed by "ejido" funds from the beginning. Foreign financing has changed over time but it has generally been unstable. As a result, one of the main concerns of both the Civil Society and the technical forestry service has been that of identifying external financing sources, instead of concentrating efforts to develop better ways of developing forests.

As shown in the graph "Financial Contributions to Forest Management," in the case of the Pilot Plan most technical activities are financed with external funds. Apart from its uncertainty, the most negative aspect of this form of financing has been its effect on the local communities' capacity for self organization.

Within this strategy, another critical element has been the instability of economic policies in general and their effect on profit levels. It's particularly necessary to mention a couple of elements: the high variability of the cost of funding (interest) and the opening of markets.

In Quintana Roo, extraction operations commonly require prefinancing with several months anticipation. The cyclical nature of the operations, caused by climatic conditions, suggest that the use of timber stocks is necessary to satisfy the industry's demand throughout the year. The availability and cost of working capital have an important effect on profitability levels and on the organization of forestry operations.

In Mexico, interest on credit is generally indexed. The graph "average percentage cost of credit" (which constitute the basis for the index) shows a high degree of variation in a context of apparent monetary stability. The graph "opportunity cost of interest" shows not only an extreme variation during the last few months, but also the fact that the cost is prohibitive for any non-speculative activity, such as forestry.

The increasing opening of national markets as well as the cyclical overvaluing/undervaluing of the domestic currency and the normal variations in the international markets contribute to the extreme instability of forestry markets. It's enough to mention that during the first three months of the present year (1994), "wood industry" imports grew by 13% as compared to the previous year.

It would seem, therefore, that simplistic recipes such as "get prices right" in the context of countries such as Mexico are not conducive to natural resource conservation based on market-oriented activities. This is particularly important in the case of sustainable forestry activities which require a very stable and favorable environment.

One of the main challenges in formulating a policy to support this strategy is to find a middle of the road between an external and reliable support and the improvement of ecological and economic conditions surrounding forestry harvesting by peasant communities, without creating a

negative effect on the internal capacity for self-organization, thus securing effective spatial control.

The Pilot Plan experience also shows that the mentioned elements do not explain observed changes. In fact the peasant's proposal was, and continues to be, to do what was being done before by forest concessionaires. This is not strange, since there are no significant historical antecedents which demonstrate that investing in forests is worth it. The example to be followed is rather that of the timber harvester who got rich quick.

A decisive factor in inducing changes has been the existence of a reduced external group, which has been able to reorient the perspective of peasant communities and to mobilize resources and energy which otherwise would have been used in activities contrary to forestry conservation.

From the perspective of international cooperation agencies, it's interesting to mention this capacity to mobilize existing resources. Maintaining a group with these characteristics is the "extra" cost of the assistance agencies. If we relate this "extra" cost to the land area where this plan to slow down destruction is functioning, we arrive at $1 to $2 per hectare, per year. If we compare these figures with the enormous costs of traditional forest conservation projects, which show scant results, it's possible to say that the Pilot Plan is possibly one of the cheapest and most effective forestry conservation projects on the international scene. It's necessary to question why this experience has not been possible in other places.

FINAL OBSERVATIONS

Unquestionably the Quintana Roo experience is one of the few cases where it has been possible to advance to a greater control of the destructive dynamics which can be generally observed in tropical areas. In other words, the general objectives of the program were achieved.

This is also recognized by the different development and aid agencies which have been associated with the project. At the same time, from the point of view of implementation, there have been many problems related to the need for continued support and sensible operation. It

is interesting to note that these same organizations have no problem in assigning abundant resources to projects that have no possibility of success but which more closely conform to their established procedures. In this sense, the Pilot Plan also offers an interesting experience in international cooperation. It would seem that the Forestry Pilot Plan procedures which have had good, if perfectible, results, do not agree very well with the norms and canons which characterize international cooperation, norms which generally haven't had positive results, particularly when contrasted to the resources spent in international cooperation projects.

To get beyond this impasse, two possible roads present themselves: Either real problems and solutions are adjusted to the requirements and procedures of the development and cooperation agencies or cooperation agencies must make an effort to adapt themselves to the demands of the problems faced. The prognosis is reserved.

GOVERNMENT AND THE ECONOMY ON THE AMAZON FRONTIER[20]

Robert R. Schneider

INTRODUCTION

Inexpensive and relatively uninhabited land still exists in many Latin American countries. This land continues to act as a magnet for both squatters and entrepreneurs in search of new economic opportunity. The current pattern of development often results in violent conflict and wasteful environmental damage. For this reason, governments in Latin America are increasingly struggling to develop policies to rationalize the settlement and development of these areas.

This report addresses some of the issues related to frontier areas. It illuminates the special characteristics of the overall political-economic context confronting frontier governments. The report's motivation comes from the concern that too many of the frontier policies are not politically sustainable. More attention must be given to the political environment on the frontier and how it's conditioned by economic interest. Frontier economies have special characteristics determined largely by an abundance of land and a sparsity of people and capital. Frontier governments also have predictable characteristics, mostly determined by their economic context and physical remoteness. In large measure these features condition the outcome of government policies in frontier areas.

Most of the data and observations in this report come from Brazil. Many of the arguments and conclusions are general, however, and rely on the economic logic of frontier settlement rather than institution- and location-specific issues.

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20. This document is a summary of Government and the Economy on the Amazon Frontier by Robert R. Schneider, World Bank, Regional Studies Program, Latin America and the Caribbean, Technical Department, Report No. 34, Washington, D.C., May 1994.

Government, Equity, and Stability on the Amazon Frontier

Much of the economic activity in the Amazon between 1970 and 1980 was stimulated by government policies. From this fact, many observers have concluded that economic activity was the result of such government policies. Also, the popular perception is that Amazon development in the Brazilian context has been an economic, distributional and environmental disaster. More recent evidence, however, indicates that economic activity in the Amazon is taking place on a scale larger that can possibly be explained by these policies. The evidence also indicates surprising economic success in agriculture, sustained over a relatively long period.

The Limited Role of Government Incentives

Over 100 000 square kilometers of native forest have been converted to pasture in the past 30 years, allowing the number of cattle in the north to grow from 1000 000 in 1950 to more than 5 000 000 in 1985. Much of this growth was encouraged by fiscal incentives, tax policy and land tenure policy. It would seem logical that the recent policy changes, which have largely terminated subsidies to the cattle industry, would discourage ranching in the Amazon. However, data indicate that the most rapid growth has taken place in small farms unlikely to have received government assistance. The finding suggests that other factors besides government policies are currently likely to be responsible for the growth of ranching in the Amazon.

Evidence shows that for the north as a whole there is a clear inverse relation between the herd size and the rate of growth. Herds smaller than 50 head represented 17 percent in 1985 and grew over 70 percent between 1980 and 1985. The two forms of direct government incentives to livestock production in the north have been subsidized credit and regional fiscal incentives (tax credit). Both forms of incentives are biased towards large farms. Thus for example, SUDAM projects averaged more than 13 000 hectares in 1989. The large farm bias of subsidized agricultural credit is well established.

Thus, the government's subsidy policy is unlikely to be currently playing an important role in the rapid growth of the cattle population. To account for the recent growth of cattle ranching in the Amazon, it is therefore necessary to look beyond government policies and transfers.

Reasonably Good Success

Recent studies throw new light on the forces determining development in the Amazon. For example, Mattos, Uhl and Concalves found that ranching is economically viable in the Paragominas Region of the eastern Amazon. This study also shows that medium and large holdings are rejuvenating degraded pastures. Other studies show that in economic terms, agriculture in the Amazon is doing relatively well. FAO studies find Amazon projects to be competitive with similar projects in southern Brazil and much more successful than those in the northeast. In terms of income, settlement in the north generated income four times greater than Brazil's minimum wage —larger than income in any region other than the south. In general, these studies show a) better success in terms of income and asset growth from official colonization projects in the Amazon than in any other region in Brazil other than the South, b) evidence of increasing yields, and c) substantial investment in profitable new pasture technologies in consolidation areas.

Relatively High Turnover

Despite this performance, turnover among colonists remains high and abandonment of agriculture continues to be reported. This turnover has been interpreted by many observers as evidence that declining yields and increasing poverty forces settlers to abandon their farms and seek new lands, in short, that Amazonian soils are unsuitable for sustainable agriculture.

In fact, evidence shows no increase in farm turnover associated with poor economic performance. On the contrary, for the data from the Amazonian region alone, there is a statistically significant positive relationship between farm turnover and economic performance. INCRA data on settlement projects by region show that although turnover was the greatest in the Amazon (north) —with only 79 percent of the original settlers still on their plots compared with 98-100 percent in all other regions (northeast, midwest, southeast and south)— the north's economic success was exceeded only by the south. By far the worst economic performance was in the northeast, where average income was only 55 percent of that in the Amazon, and the rate of growth of assets less than one fifth of that in the Amazon. Yet, 99 percent of the original settlers in the northeast were still on their plots.

Projects in the north also follow the same pattern: higher farm incomes are associated with higher farm turnover. The negative relationship between stability and incomes suggests that the most popular policy recommendation —to create stability by strengthening incomes— may be counterproductive. Without a much better understanding of the actual determinants of farm instability, policy interventions are doomed to failure. This case clearly illustrates the uncertainties involved in predicting effects of policies and the need to analyze in detail cause-effect relationships

The determinants of Frontier Instability

The paradox of relatively good economic performance in the Amazon and high farm turnover can be explained by economic conditions. Forces promoting transience at the frontier are a) the effect of cheap land in encouraging the mining of the natural resource base ("nutrient mining"), b) the combined effect of high interest rates, poorly developed credit markets, and a frontier culture of *imediatismo,* and c) the opportunity cost effect caused by i) the difference in education and other human capital attributes between early settlers and more recent arrivals, and ii) the changing role of property rights (the "sell out" effect).

Cheap Land and Nutrient Mining

Popular discussion of land abandonment in the Amazon tends to blame land degradation and falling yields. Undoubtedly some land is being degraded in frontier areas: the economics of cheap, easily accessible land tends to promote nutrient, which is the unsustainable extraction of nutrients from the forest soil through logging, cropping and ranching. The process demands that new land constantly be brought into production as nutrients are extracted in the form of logs, crops and meat. As a result, mined land is abandoned. Nutrient mining in the Amazon is a market response to an abundance of accessible Amazonian land generated by new road building. With land nearly free, it's cheaper to move the farm to the nutrients than to buy fertilizers and carry them to the farm. From the individual's point of view, nutrient mining is a rational approach to agriculture in a land-surplus (and land-accessible) economy.

"Imediatismo" and High Interest Rates

High interest rates also force farmers to seek quick, albeit unsustainable, profits.

A farmer can choose between resource uses offering different degrees of "sustainability." Typically, however, in land-abundant frontier situations, if he chooses the technique that will produce sustained yields in the future, he has to sacrifice income today. This trade off reflects the fact that higher current incomes come from mining the natural resource base. Unsustainable land use initially offers higher annual production and profits, but then it gives way to declining yields. The final decision will depend on the level of interest rates. In Brazil, real interest rates are extremely high, as they have been for most of the last decade. In these conditions, unsustainable activities —which yield greater income in the near future— are preferred. Given conservative assumptions about productivity decay rates (10-30 %), and high prevailing interest rates, farmers seek quick —albeit unsustainable— profits, unless sustainable activities can offer initial profits that are 50-70 percent as high as initial unsustainable profits. Most known "sustainable" activities for tropical land use using current technologies simply do not offer such high annual incomes.

The sell-Out Effect

Transience and instability on new frontiers primarily occurs because the earlier settlers, those extending the frontier at the margin, tend to be relatively disadvantaged in terms of physical and human capital. People with low physical and human capital, and little opportunity to do well elsewhere, are more likely to endure the deprivation and health risks associated with opening new lands at the frontier. People with somewhat higher opportunity costs are likely to wait until the frontier is better established before they take the risk. Those who are fully integrated into the national (or international) economy will generally wait until government is relatively well established, and until property rights are clarified and enforced, before they consider putting life and capital at risk.

As long as new roads are being built, and no program of well articulated, offsetting policies is in place, early settlers will generally sell out to a better-endowed second generation of (often urban-based) buyers. This probability grows with a) increased availability of new land,

b) widening difference in access to credit between the early settlers and the second generation buyers, and c) the difference in accessibility of government services (education, health, official credit, agricultural research and extension, marketing and land tenure services) to the early settlers and the new entrepreneurs. Later migrants (entrepreneurs) have lower discount rates due to better access to credit and a management advantage. They are also better able to take advantage of government services. These advantages are reflected in the purchase price they are willing to offer earlier settlers and virtually guarantee that the early settlers can be bid off the land by newcomers.

The Decision to "Abandon Land"

Does the evidence of abandoned land support the thesis of fertility decline and loss of agricultural productivity? It may; however, alternative explanations are more consistent with the evidence presented above. We can identify two kinds of abandonment that have nothing to do with fertility decline. Both are related to the role of government and the cost of defending property rights. The first is the abandonment of large schemes to squatters. This situation occurs when government encourages premature economic activity on the part of formal sector agents, such as the fiscal incentive schemes in Brazil. The second type of abandonment is the reverse of the first. It takes place when formal government begins to effectively pick up the role of protecting and enforcing property rights.

Occupation only pays for those members of society with the lowest opportunity cost. Government efforts to allocate or sell to select groups inevitably falter as these agents require their opportunity cost on management and financial capital if they are to actively work the land. They will hold the land only if the cost of tenure security is low relative to expected productivity gains. Generally, large, officially established ranches were abandoned because the economic activity was premature (in terms of opportunity costs of large landowners), and because government did not effectively enforce property rights. Waiting was too costly, given the high expenses associated with protecting property against squatters (who, due to their relatively low opportunity costs, did find farming in the Amazon competitive with their alternatives elsewhere).

The second abandonment is occurring now in many colonized areas of Pará and Rondìnia. It occurs when property rights become secure

enough for urban-based speculators to leave land idle without fear of invasion by squatters. Formal sector agents recognize that they do not have to occupy land any longer in order to own it. Because of their superior access to credit and government services, it's relatively easy for these entrepreneurs to bid the earlier settlers off the land.

Government Policies

The Role of Government and Efficient Settlement

The role of government policies in frontier areas deserves carefully analysis. Government policies can either encourage environmentally destructive and economically wasteful mining of natural resources or stable communities based on sustainable activities. Furthermore, the cost of frontier economies supported by government must be evaluated relative to expected benefits.

There are four major classes of possible efficiency losses at the frontier. These can be classified as a) premature government, b) premature settlement, c) tenure insecurity inefficiency and d) environmental externalities. Premature government occurs when government's investments in the economic activity of an area occurs too early and cost is far our of proportion to the expected value-added of the area. Premature settlement takes place when labor and capital occupy frontier land before the returns from the land can repay the factor's opportunity cost. This situation occurs when occupation is a condition of future ownership. In this case farmers may farm at a loss (in opportunity cost terms) to be the first to lay claim to uninhabited land. Land tenure insecurity causes inefficiency whenever it leads a farmer to forgo a profitable investment he would otherwise have undertaken. Efficiency losses from externalities come both from insecurity of tenure and from a lack of a market in environmental values.

Sustainability and the Role of Government on the Frontier

Government has much to do with whether or not frontier settlements are sustainable. For settlement to be stable, government must prevail

against the economic forces which tend to promote transience. As we have seen, these are the "mining effect," "imediatismo" and the "sell-out" effect. Any act by government that increases the supply of new land, or reduces its cost, will increase the mining effect and tend to undermine the stability of existing communities and economic activities. Also, unequal access to government services and credit markets (between early arrivers and the more highly educated, urban-based population that follows) will promote transience and continued expansion of the frontier through both the "imediatismo" and "sell-out" effects.

1. Policies Affecting the Mining Effect. If nutrient mining is caused by cheap land, then the most direct way to reduce it is to avoid policies that lower the price of land. Roads policies can either raise or lower the price of land by increasing profitability of agricultural activities and the supply of land. Credit policy determines the supply of financial resources available to bid the price of new land to equilibrium. I f massive amounts of land are put on the market, supply may exceed the capacity of credit markets to permit the bidding of this land to a market equilibrium price and land may remain underpriced for long periods of time. Also, ineffective land tenure and collateral policy typically prevent the rapid convergence of land prices to "economic" levels (where rent disappears). No bank is willing to accept land as collateral as long as rural land ownership is not legally documented and undisputed and systems to adjudicate land disputes are ineffective.

2. Policies to reduce "imediatismo". Changes in credit policies would clearly not influence those who have exhausted any possible source of credit. They would, however, affect those who borrow (and repay) and who make decisions based on the prevailing interest rates. Any policies effectively lowering interest rates would help. Other possible policies that would help include encouraging the mobilization of savings in rural areas through credit cooperatives or branch banking, combining the taking of deposits and short-term lending, and developing the capacity to judge the credit worthiness of small holders.

3. Policies to Reduce the "Sell-Out" Effect. The "sell-out" effect can be reduced by influencing the economic value of the land to the current owner relative to the price offered by the prospective buyer and by increasing the supply of services that would provide non-monetary benefits in the region that would not be likely to be available if the settler were to sell out and move farther out toward the economic

frontier. The differential access to government services is probably the major force influencing the relative value of land to the early settler and the prospective buyer. For example, if the prospective buyer can mortgage urban land at ten percent while the early settler must borrow form the moneylender at 100 percent, the effect on relative rates of time preference is overwhelming. Or the urban entrepreneur may know that he can get secure land title, while the settler is kept in doubt whether or not the land titling agency will ever deliver the promised title. Similarly, the extension service may be more comfortable dealing with well-educated entrepreneurs. All these factors combined make the land worth more to the relatively well-off, educated, urban businessman than to the uneducated rural settler. Other government services such as health, education and community services are important incentives for families to stay put.

Premature Government

Frontier growth is often imposed from a relatively remote central government. Central government expenditure in frontier government can be seen as an investment in the future economy of the region. One way to measure the effectiveness of government as an investment is to compare the state's or region's net expenditure to its overall value added. Where this ratio is large, government represents the main source of economic activity. Where the relative size of government is large initially, but falls rapidly, states are "growing-up." States where the share of government remains high, without signs of emerging independence, are probably premature from an economic point of view. In these states the government has failed to create the preconditions for self-sustaining economic growth.

The Amazon states can be clearly divided into two groups. For the states beyond the frontier —Roraima, Amapá and Acre— dependency has grown during the ten-year period between 1975 and 1985. In Roraima, according to official statistics, net transfers to state government in 1985 exceeded the entire value added of the state. In Acre the government's percentage of GDP grew from 46 percent to 79 percent during the period. In Amapá it increased from 78 to 84 percent. On the other hand, the frontier states —Rondania, Pará and Mato Grosso— have made substantial progress towards self-sufficiency, both reducing their dependency on the Federation from 21 percentage points of their respective GDPs to 6 percentage points of GDP.

The question "how long should it take for states to grow up?" cannot be answered. Clearly a relatively long period of investment could be justified if the expected future return were sufficiently high. But investment in economic development in extra-frontier states is *a priori* a losing proposition. National governments that sustain the economic life of ex-frontier states must be ever wary not to forget this fact, or else they will be drawn into permanently financing local developmental schemes. These schemes will generate wealth for the participants, but their chance of achieving economic sustainability is minuscule.

NATIONAL ISSUES

ENVIRONMENTAL AND ECONOMIC DEVELOPMENT CONSEQUENCES OF FOREST AND AGRICULTURAL SECTOR POLICIES IN LATIN AMERICA (A Synthesis Of Case Studies Of Costa Rica, Ecuador, And Bolivia)

Rigoberto Stewart[21]
David Gibson[22]

INTRODUCTION

The observed high rates of tropical deforestation in Latin America and other parts of the world have been explained, not as a consequence of a coherent government strategy followed to achieve pre-determined goals, but rather in terms of a number of government policies, such as land tenure policies (Macdonald, Lambert et al), agricultural input subsidies (Repetto), under-funding of research and extension in both the forest and agricultural sectors (Southgate and Whitaker), and discriminating macroeconomic policies (IICA 1988, Valdés 1992).

The underlying theme of these explanations is that macroeconomic and a number of agricultural and forest sector policies each play some role in making agricultural activities more profitable than forest management and, therefore, in inducing forest stewards and land owners to devote the land resource to agricultural activities. Yet, because the relative weight of each type of policy has seldom been measured, little is known about how much each policy or type of policy contributes to the process.

It is also customary in Latin America to present the deforestation problem as a choice between economic development and the environment. But is this true or can both environmental and economic develop-

21. Rigoberto Stewart is a Costarrican economist, international consultant and president of STEWART ASSOCIATES in Heredia, Costa Rica.

22. David Gibson worked for the USAID in the Environmental and Natural Resources Division.

ment goals be achieved simultaneously? This question has not been answered convincingly because the economic development effects of relevant policies —meaning the costs incurred in terms of economic efficiency and income distribution— have not been appropriately quantified.

The purpose of this paper, which draws heavily on the results of three country case studies in Latin America —Bolivia, Costa Rica and Ecuador— and presents the framework in which macroeconomic and sector policies are developed, is to use specific measures or indices to explain how the sectoral policies have tilted the balance against forestry and in favor of agriculture, and to present estimates of their economic development effects.

Table 4. The Native Forest Resource and Economic Importance of the Forest Sector in Three Latin American Countries, 1990-1993

	Bolivia	Costa Rica	Ecuador
Forest Resource			
Country size (mill ha)	109.8	5.1	27.1
Size of native forests (mill ha)[a]	56.5	0.2-0.4	11.4
Production forests as % of total	51.4	5.8	42.1
Annual cut (million m^3 logs)[b]	2.5	1.5	0.1[c]
Deforestation rate (000ha/yr)	80-200	18-40	100-300
Number of predominant species[d]	11	60	35
Forest Tenure			
Concessions	Yes	No	No
Private property	No	Yes	No
Active colonization process	Yes	No	Yes
Economic Importance			
Contribution to Ag. GDP (%)	<12	4.7[e]	6.3
Contribution total GDP (%)	<2.5[f]	0.94	1.1
Value of sector exports (mill $)	80	25	29
Forest exports as % of total	6	1.5	1.1
Sector employment (000)	6[i]	12[g]	75[h]
Percent of total employment	0.26	1	1

a. Intervened and non-intervened.
b. Roundwood equivalent used by industry.
c. In 1990; only 30% is actually turned into industrial roundwood.
d. Most harvested commercial species. e/ Only sawnwood apparently.
f. In 1990.
g. Does not include those in field operations.
h. Total sector employment. i/ Estimated.

Source: Stewart (1994); IMF 1992; Encyclopedia Britannica 1993.

First, information on the forest and industrial resources of the three countries is presented along with the framework within which polices are designed; next, the effects of sectoral policies on land use and forest management decisions are presented, followed by a quantification and discussion of the economic costs of relevant sectoral policies; next, conclusions and recommendations for policy reform are offered; and finally, a methodological appendix is presented.

BACKGROUND

The three countries selected cover the whole spectrum observed in Latin America in terms of the salient characteristics of the native forests and the principal government policies affecting the forest sector. This section will present those characteristics along with the general framework within which economic policies have been developed.

The Forest Sectors

The size of native forests remaining in Latin America varies from about 300 000 ha (hectares) in Costa Rica, one of the smallest, to 56.5 million ha in Bolivia, one of the largest (Table 4). Costa Rica's annual extraction— in number of species and total volume —and deforestation rates, however, are proportionately some of the highest in Latin America. Despite their size, species richness and production potential, the forest sectors of the three countries make only negligible contributions to the overall economy: 0.9 to 2.5 percent of total GDP, 1.5 to < 6 percent of total exports, and 0.3 to 1 percent of total employment.

Table 5. Composition of the Forest Industry in Three Countries, 1986-1993.

Industry	Bolivia[1]	Costa Rica[2]	Ecuador[3]
Sawmills	217	170	435
Plywood and similar[4]	2	3	8
Veneer	5	0	u
Parquet	2	2	18
Box manufacturers	0	0	38
Furniture (all types)	u[5]	390	u
Doors and windows	2	9	u
Railroad sleepers	37	0	u
Match factory	1	2	u

Source:
1. Reported by CDF (Centro de Desarrollo Forestal) for 1990.
2. Reported by DGF (Dirección General Forestal) for 1986-1992.
3. Reported by CORMADERA for 1987.
4. Hard board, particle board.
5. There are about 100 carpentry shops making doors, window frames, parquet flooring in Cochabamba.

u = unknown.

The most basic wood processing in Latin America is done by individuals with chain saws who fell and convert logs in the forest to rough sawnwood. They process most of the timber harvested in Ecuador and a significant proportion of what is harvested in Bolivia and Costa Rica. The next level of processing is done by small, old, inefficient sawmills, with processing capacities between 500m^3/yr and 10 000m^3/yr (average 4400m^3/yr in Costa Rica), utilization rates between 50 percent and 80 percent, and conversion rates between 40 and 60 percent (average 48% in Costa Rica). The next level of processing is done by a small number of relatively inefficient veneer, plywood, particle board and parquet manufacturing plants (Table 5).

The Policy Framework

The set of policies that have strongly influenced land use decisions and affected the development of forest industries in Latin America are not, as it may seem, a collection of dispersed, haphazard measures, but rather components of a coherent government strategy devised to achieve specific goals.

Induced by Raúl Prebisch and the Latin American Economic Commission (CEPAL), in the 1950s most of these countries adopted the import substitution development model in which imports were substituted by domestic production and lead to high levels of self-sufficiency. In this model, the industrial sector is the engine of development and, therefore, it was to be protected and subsidized until it grew out of infancy. Most of the macroeconomic and sector level policy measures were devised to achieve this goal.

An overvalued currency and very high tariffs on the import of final goods, both industrial and agricultural, were key components of the model's trade policy. The overvalued currency made the import of industrial raw materials cheap, while high tariffs protected the industrial activities from foreign competition. A undesired effect of overvalued currency was a heavy tax on all exports.

The macroeconomic policies eventually led to high real interest rates and rapid inflation, both of which have been devastating to forestry. Given that income from forest projects is realized far into the future, interest rates are key determinants of their financial viability. The higher the rates, the lower the profitability of a given project and the smaller the number of viable projects. This is not the same for agricultural projects, most of which are short term.

The farming sector was to provide cheap food —to keep industrial wages low— and raw materials, but rural-urban migration was to be avoided at the same time. Therefore, farming was to be profitable and rural income increased. The policy mix thus included: subsidizing of agricultural colonization and farming inputs, such as fertilizers, machinery and credit; investment in rural infrastructure; tariff and non-tariff barriers to the import of basic foodstuff; and the creation of parastatals which, at times, offered high farm-gate prices and sold the product at lower prices to consumers, subsidizing both. In the 1980s the model was somewhat modified and governments began to subsidize nontraditional exports, such as melons, flowers, and hearts of palm.

In the forest sector, the goal was to develop the industry and to provide land for agricultural production. Therefore the policy mix was: log export ban; export ban of other unprocessed products, such as cants, flitches, and even sawnwood in Costa Rica; high tariff and non-tariff barriers to the import of processed forest products, especially plywood and furniture; and some forest taxes.

THE EFFECTS OF SECTORAL POLICIES ON LAND USE AND FOREST MANAGEMENT DECISIONS

Forest stewards and land owners make decisions concerning the choice to manage forests rather than convert to agricultural or other uses on the basis of economic returns. Consequently, government policies which influence the financial returns possible from competing land uses have a direct impact on landowner decision making.

This section uses quantitative estimates from the three case studies and from other sources to illustrate how trade, forest and land tenure and access, and fiscal policies, individually and collectively, made agricultural investments artificially more profitable to private land and forest holders than investments in plantation or in management of native forests.

The Effects of Trade Policies

The most influential trade measures in the forest sectors have been log export bans and import tariffs on industrialized forest products. Of lesser importance have been export subsidies of products like plywood and furniture (ranging from 2 to 10%) and some non-tariff barriers to imports. These trade measures, which have been devised with the objectives of generating employment, economic surplus and value added through greater domestic processing (industrialization) of forest raw materials, have been detrimental to forest management. The log export ban depressed domestic log and stumpage prices and reduced the profitability of all types of forest management. Nominal rates of protection[23] (NRP) estimates indicate that log and stumpage prices in the three countries have been only 6 to 60 percent[24] of what they would have been otherwise.

23. The nominal rate of protection (NRP) measures the percentage deviation (up or down) of domestic (distorted) prices from what is called border (undistorted) prices. The latter are the prices that would have prevailed in the absence of distortions. See the Methodological Appendix and Stewart, 1994 (the Costa Rica case study) for estimation details.

24. They were 20 to 60 percent of border prices in Costa Rica; 6 to 16 percent in Ecuador, and 25 to 55 percent in Bolivia.

While the most relevant trade measures in the forest sector have been designed to subsidize and protect industrial activities (like plywood manufacture) in detriment to timber farming, trade measures such as import tariffs, export subsidies, and non-tariff import barriers (quotas, permits) have been used in the agricultural sector to protect cattle ranching and selected agricultural activities, most of which compete with forestry for both agricultural and forest lands. Import tariffs and non-tariff barriers, such as outright import prohibition, permits and quotas, have been the preferred mechanism for protecting grain production (rice, beans, maize) in Latin America. Export subsidies, which were traditionally used by parastatals as a subsidiary mechanism for managing grain stocks, are now going to non-traditional exports, such as ornamentals, hearts of palm, and spices. Some exportables such as beef and sugar have been subsidized through preferred prices in developed countries.

Table 6. Nominal and Effective Protection of Some Agricultural Activities in Selected Latin American Countries 1987-1993.

Crops	Brazil	Costa Rica	Ecuador	Dominican Republic
		Nominal Rates of Protection		
Beef u	u	u	15.9	
Cotton	29.8	u	u	u
Maize	74.2	41.2	59.7[a]	143.1
Rice 30.0	17.6	45.0[b]	34.1	
Edible Beans	20.0	31.0	49.5[b]	34.1
Timber (logs)	u	-50	-70[d]	u
		Effective Rates of Protection		
Beef	u	u	u	u
Cotton	u	u	u	u
Maize	u	81.0	u	55.3
Rice u	57.0	u	120.8	
Edible Beans	u	53.0	123-866[c]	66.2

a. In 1987.
b. Soybeans, in 1988.
c. Soybeans, range across technologies.
d. Average.
u = unavailable.

Source: Valdés, 1992; Stewart and Cuesta, 1988; Stewart and Acosta, 1988; and Stewart, Cuesta and Acosta, 1988.

The concerted actions of agricultural trade measures have provided high levels of nominal and effective protection[25] through artificially high farm-gate prices and private profits. The NRP and ERP estimates (Table 6) are indicative of how the prices and profitability of some forest-competing agricultural activities were incremented by such measures in the recent past.[26] The Costa Rican NRPs, for example, indicate that in 1991 bean and maize farm-gate prices were inflated by 31 and 41 percent, respectively, while the ERPs indicate that the return to domestic resources, particularly land, were increased by 53 and 81 percent, respectively.

The combination of negative protection of forestry, which reduced stumpage prices by about 50 percent, with positive nominal protection of agricultural activities made the latter relatively more profitable than the former. In some cases the relative profitability has been reversed, as illustrated by the following Costa Rican example. With the two types of distortions in place, the net present value (NPV) of the income stream produced by a 40-year sustainable management of native forest project (the definition of sustainable management was very restrictive) in the northern region was estimated at US$707/ha, while the NPV of growing beans for 40 years would be US$1247/ha. Without the distortions, that is, with doubled stumpage prices and bean farm prices reduced by 30 percent, the NPV of sustainable forest management would become US$1414/ha, while the NPV of growing beans would become negative. The conclusion from this particular example is that with the distortions land owners will grow beans; without the distortions, they would manage the forests.[27]

25. Value added refers to the contribution made by domestic production resources (land, labor, capital, management), and is measured by the difference between the price of a unit of the product and the cost of the imported (more specifically, tradable) inputs used to produce that unit. The effective rate of protection (RERP) is the ratio of domestic to economic value added. See the methodological appendix and Stewart, 1994 for a detailed explanation of the concept and methodology.

26. Given that estimates of protection indices were unavailable for Bolivia, estimates for Brazil and Dominican Republic were included to show how pervasive these measures have been in Latin America.

27. Under the very restrictive definition of sustainable management it would be more profitable to liquidate the forest than to manage it, but there is another equally valid definition of sustainable management in which sustainable management is more profitable than liquidation.

The Effects of Forest and Land Access and Tenure Policies

There are at least three ways in which an individual or firm can obtain access to land and native forests in Latin America: through purchase, colonization, and concessions or extraction permits. Costa Rica is the only country of the three cases studied in which there is a developed market for land and native forest, and therefore, is the only one in which native forests can be bought and sold.

Colonization, which is the most prevalent form of access in Ecuador and very important in Bolivia, is the process through which Latin American peasants, landless laborers, and others invade unoccupied lands —mostly publicly owned and forested— with the main purpose of securing the livelihood of their families through subsistence farming. Latin American governments have traditionally encouraged this process through road building and free land surveys and titling; they have also required the substitution of forest cover with pasture or food crops in order to provide titles and subsidized credit. Unless these policies change, the vigorous colonization processes of Ecuador and Bolivia will destroy millions of hectares of remaining tropical forest, with dire environmental consequences.

Government concessions, the most prevalent means of access to native forests by logging firms in Bolivia, have overwhelmingly taken the form of short-term user contracts or extraction permits,[28] which have been frequently invaded and partially deforested by peasants, to whom the government has often granted land titles. The length of the contracts plus the vagueness of property rights translate into tenure insecurity[29] which have made investments in management practices unprofitable. As a consequence, concessions in Bolivia have not been well managed.

28. Until 1992, 90 percent of all contracts granted in Santa Cruz were of three years or less in duration.

29. The effects of other policies, however, indicate that tenure security is a necessary condition for sustainable management of native forests, albeit not a sufficient one. Southgate *et al.* (1992), for example, used a regression equation to explain deforestation. One of the explanatory variables, which turned out to be significant with 94 percent confidence, was an index of tenure security.

The Effects of Fiscal Policies

There are two kinds of fiscal interventions in both sectors which strongly influence land use and forest management decisions: those through which the government collects revenues and those through which it makes expenditures. The Latin American experience indicates that only the latter has had significant impact on land use decisions.

Revenue Policies

Latin American governments have collected only negligible amounts of revenue in their forest sectors. The sum of the three taxes levied on timber in Bolivia— royalty, and stumpage and reforestation fees —have been less than 6 percent of FOB, Santa Cruz log values; and the sum of stumpage and reforestation fees in Ecuador and Costa Rica have been together less than 7.5 percent of domestic log values. Given these poor records of revenue collection in the forest sector and the virtual absence of agricultural land taxes, it can be argued that government revenue policies have played a negligible role in the struggle for land between the two types of farming activities.[30]

Expenditure Policies

In contrast to the above, government expenditure policies have exhibited a strong anti-forestry, pro-agricultural bias. Forest sector research and extension expenditures have been negligible in all three countries, and forest subsidies have been nil in Ecuador[31] and Bolivia, and limited in Costa Rica.

30. The way in which stumpage fees are set in Bolivia has had a negative impact on how the concessions are managed. Because in practice stumpage fees are levied on sawnwood, firms have been given a free hand in the forest (without supervision) to choose the trees and logs to be extracted, and they only transported the best parts of the best trees. This has led to significant waste of forest raw materials in the field. Claure (1992) reported that not more than 30 percent of usable raw material is recovered at the sawnwood level.

31. At the time of the studies, Ecuador was contemplating a reforestation subsidy program. The two subsidy programs in Costa Rica (for reforestation and native forest management) have failed to neutralize the anti-forestry bias of policies in general because of the arbitrary selection of beneficiaries, the financial inviability of the projects and the forced rationing of limited funds.

On the other hand, many agricultural activities have been stimulated by a number of subsidies unmatched in the forest sector, such as investments in research and extension, export subsidies, price supports, and credit and other input subsidies. Latin American governments have traditionally devoted 0.1 to 2.0 percent of agricultural GDP to agricultural research (World Bank, 1981). Bolivia, for example, invested 0.6 percent in 1989. In the 1980s, these governments also started to subsidize the export of agricultural products, especially non-traditional exportables like melons, hearts of palm, ornamental plants.[32] The price support of a number of products competing with forestry (rice, beans, maize, dairy, soybeans) has been financed and implemented by parastatals created specifically for this purpose: CNP (National Production Council) in Costa Rica, ENAC (National Storage and Commercialization Company) in Ecuador. As part of the cheap food program, food crop producers have received substantial credit subsidies. Interest rate subsidies to rice, maize and bean producers in Costa Rica during 1986-91 ranged between 3 and 25 percentage points.[33] In addition, investments in infrastructure, such as roads, silos, warehouses and processing facilities, mostly favor agriculture (most forest roads are built by the private sector).

Table 7. Producer Subsidy Equivalents for Some Crops in Brazil, Costa Rica and Dominican Republic, 1990-1991.

Crops	Brazil	Costa Rica	Ecuador
Cotton	123.0	n.r.	n.r.
Maize	-5.7	35.4	54.0
Rice	39.2	21.8	54.9
Edible Beans	125.9	5.0	39.2

Source: Valdés 1992.
Note: Data for Bolivia was unavailable, and Brazil was included only as another example in Latin America.

32. Forest sector export subsidies are directed to processed products like plywood and furniture (typicaly 2 to 4 percent of FOB, port value) and not to primary forest products. And because of policies like the log export ban, forest stewards do not benefit from these subsidies.

33. To make up for the lack of long-term credit instruments, the Government of Costa Rica has created a fund for financing forestry projects: FONAFIFO (National Fund for Forestry Financing). This is a very new undertaking, however, which is limited and lacks the capability of filling the gap created by the dearth of appropriate financial instruments.

The concerted subsidy effect of all these policies is summarized by the Producer Subsidy Equivalent (PSE), an index used by the World Bank. The PSEs in Table 7 indicate, for example, that the subsidy conferred to Costa Rica's maize producers through price support subsidized credit and expenditures on research and extension was equivalent to 35.4 percent of the maize value at domestic prices (Stewart 1991).

At these levels of subsidy, many economically (socially) unprofitable forest-competing agricultural projects become privately profitable, even on traditional forest lands, as demonstrated by the Costa Rican example. The combination of this result with the high taxation of forestry that results from the policies render forest management projects completely uncompetitive with many agricultural projects and encourage forest stewards to invest in the latter.

ECONOMIC DEVELOPMENT EFFECTS OF SECTORAL POLICIES

It is clear from the results presented above that sectoral trade, forest and land access and tenure, and fiscal policies have tilted tradeoffs against forestry and in favor of agricultural activities, and thus have been responsible for the environmental destruction observed in Latin America. Deforestation is only one dimension of the problem. Some of those policies have also seriously reduced the economic efficiency in both sectors and have contributed significantly to the worsening of the income distribution among participants in forest products markets. Thus, it can be said that the sectoral policies have been detrimental to both the environment and the economic development of Latin American countries.

This section will first present the nominal and effective protection coefficients for the forest industry and discuss their implications, and then proceed to discuss the economic efficiency and income distribution effects of the policies.

Nominal and Effective Protection of Forest Industries

According to the import substitution development model adopted by Latin American countries during the 1950s, the agricultural sector was supposed to provide cheap food while other sectors provided raw materials for industry. This has been very evident in the forest sectors where processing activities, especially intermediate and downstream, have been strongly protected from competing imports through tariffs and non-tariff trade barriers. Other policies such as the log export ban were devised with the express intent to provide cheap raw materials to those processing industries. The extent to which the tariff and other non-tariff trade barriers and the log export ban protected and subsidized forest industrial activities is captured by the nominal and effective protection indices.

Table 8. Indicators of the Impacts of Trade Distortions in the Forest Sector, 1992-1993.

Indicators	Bolivia	Costa Rica	Ecuador
Sawnwood			
NRP (%)	n.e.	1-21	n.e.
Private value added (US$/m^3)[a]	191.6	222.3[c]	n.e.
Economic value added (US$/m^3)[b]	(103.4)	64.2[c]	n.e.
ERP (%)	n.m.	246	n.e.
Plywood			
NRP (%)	2[d]	23-122	30
Private value added (US$/m^3)[a]	168.2	160.2	314.8
Economic value added (US$/m^3)[b]	7.5	12	23.8
ERP (%)	2142	1230	1222

Note: Numbers in parentheses are negative.
a Value of product minus cost of imported inputs. See Stewart, 1994.
b Same as a/ but using economic (undistorted) prices.
c For semi-hard species.
d There was a 2% drawback on exports, but no protective tariff.
n.e = not estimated.
n.m. = no meaning or close to infinity.
Sources: Stewart *et al.* 1993, Southgate *et al* 1994, Stewart 1994.

Nominal Protection

Given that the strategy in Latin America has been to promote those industrial activities that generated substantial value added, like downstream processing, the milling activities received negligible or no nominal protection from import tariffs or export subsidies (Table 8). The exception was Costa Rica, a country which has been following a more or less self-sufficient policy in the forest sector, and which not only banned sawnwood exports until 1992, but also imposed high tariffs on sawnwood imports (they went from an average of 40 percent and a high NRP in 1986 to 10 percent and a low NRP in late 1993).

As expected, the plywood industries have been well protected at the product level. The combination of import tariffs with monopolistic market structures allowed domestic manufacturers to charge a price inflated by 30 percent in Ecuador and a range of 23 to 122 percent in Costa Rica.[34] The tariff rates were subsequently reduced to 9 and 14 percent, respectively, in late 1993.

Effective Protection

Log export bans combined with import tariffs on sawnwood and plywood provided substantial effective protection to milling and plywood manufacturing activities. Given the very low nominal protection, it is clear that in Costa Rica and Bolivia the log export ban provided almost all of the significant effective protection granted to milling. In Bolivia, the logs used were more valuable than the sawnwood produced. Therefore, the milling process destroyed economic value. This is why the posted economic value added is negative. In this perverse scenario, the index of effective protection (ERP) approaches infinity and thus loses its meaning.

The plywood ERP of 1200 percent in Costa Rica and Ecuador and 2100 percent in Bolivia indicate that the returns to domestic factors of production were increased by 1200 and 2100 percent, respectively, from what they would have been without the two trade distortions. Most of this increase in returns were captured by plywood manufacturers in the form of economic rents, which implies that the increased returns went to capital (to the shareholders of the manufacturing companies), and not to labor.

34. Bolivia, a country which produces negligible amounts of plywood, lifted all tariffs on plywood imports in 1985.

The artificial increases in returns attract resources from elsewhere in the economy to these industrial activities. Past events in Costa Rica are quite illustrative: forest stewards have been liquidating or selling their forests and installing sawmills with the proceeds. Because these resources have been more productive socially (economically) in their previous use, it is concluded that the protection policies are responsible for significant losses in economic efficiency.

Economic Efficiency Effects

The high levels of effective protection granted to forest industries, primarily to plywood, have been achieved at significant direct and indirect economic costs.

Direct Economic Costs

The direct economic costs are associated with the log export ban and import tariff on sawnwood. In contrast, with sawnwood and plywood, and partly as a consequence of plywood protection, the effective protection of doors and furniture in Costa Rica (not shown in the table) were quite low: 9 and 35 percent, respectively. This is ironic since there are indications that the country has a comparative advantage in the manufacture of furniture, but not plywood (Stewart, 1994). The combination of low log (the input) prices and high plywood (the output) prices has enabled inefficient manufacturers to produce plywood at high private profits, profits that are mainly transfers from forest stewards and plywood users. At economic (undistorted) prices, however, profits are negative. The logs used are more valuable (measured by what the international market would pay) than the sawnwood and plywood produced. Therefore, the difference between the value of the output and the price of the input (logs) plus the processing cost constitute the economic cost of sawing or manufacturing plywood instead of exporting logs. Table 9 presents these calculations for sawnwood in Costa Rica and Bolivia and for plywood in Costa Rica and Ecuador.

The Ecuadorian situation is very illustrative: plywood manufacturers spend about US$200 to convert US$500 worth of logs (the economic value) into a cubic meter of plywood which could be imported at a cost of US$320 to US$400 (the economic value). The economic loss to the country is US$300 to US$380/m3 of plywood produced.

In terms of the confessed government objectives of generating employment, domestic value added and economic surplus through domestic processing, the results have been disastrous. Domestic value added was negative in all cases, indicating that economic value was destroyed, not added, during the process. As for the employment objective, the results indicate that forcing domestic processing has been a very costly way of creating employment, since each job generated in Ecuador through the decision to manufacture plywood instead of exporting the logs had an economic cost equivalent to 19 times the wage paid.

Table 9. Direct Economic Costs of Trade Distortions in the Forest Sector, 1992-1993 (US$).

Indicators	Bolivia	Costa Rica	Ecuador
Sawnwood			
Economic value of logs, (mills)[1]	22.9-27.2	53.0	n.e.
Value of sawnwood produced	18.7	45.4	n.e.
Milling costs (mill)	2.4	8.2	n.e.
Net value to sawmills (mill)	16.3	37.2	n.e.
Country's economic loss (mills)	6.6-10.9	15.8	n.e.
Tot. production of sawnwood (000m^3)	44.9	264.6	n.e.
Total jobs created (70/m^3)	642.5	3 780.0	n.e
Cost per job generated (yearly)	10 272-16 965.0	4 213.0	n.e
Yearly wage	780.0	2 068.0	n.e.
Cost per job in number of wages	13.2-21.7	2.0	n.e.
Plywood			
Economic value of 1m^3 of plywood	n.e.	404.6	320.1
Value of logs in 1m^3 of plywood	n.e.	256.0	500.0
Mfg. costs of 1m^3 of plywood	n.e.	235.0	200.0
Country's econ. loss/1m^3 of plywood	n.e.	86.4	380.0
Total production of plywood (m^3)	n.e.	27 000.0	85 000.0
Total economic loss (mills)	n.e.	2.3	32.3
Total jobs created (40/m^3)	n.e.	675.0	2 125.0
Cost per job generated (yearly)	n.e.	3 456.0	15 200.0
Yearly wage	n.e.	2 068.0	780.0
Cost per job in number of wages	n.e.	1.67	19.5
For. exch. from log exports (mills)	n.e.	7.1	42.5
Foreign exch. expend. on plywood imports (mills)	n.e.	11.2	27.2
Foreign exch. savings from tradable inputs (mills)			
Net potential savings (mills)	n.e.	- 4.1	15.3
Cost per job in terms of F.E. (mills)	n.e.	- 6.085.0	7.200.0
F.E. cost in terms of number of wages	n.e.	- 2.9	22.4

1. It was estimated that only 450,000m^3 could be exported in the form of logs.
Sources: Stewar *et al.* 1993, Southgate *et al* 1994, Stewart 1994.

This decision was also very costly in terms of foreign exchange earnings, since each job was created at a cost equivalent to 22.4 annual wages. The decision to produce sawnwood instead of exporting logs was also unwise as illustrated by the costs incurred in Costa Rica and Bolivia[35].

Indirect Economic Costs

The indirect economic costs incurred as a consequence of the resource misallocation stimulated by the distortions can be even more important than the direct costs. Yet they are seldom mentioned in the literature, and little attempt has been made to estimate them. A brief discussion of three types of indirect costs follows.

Table 10. Economic Transfers Between Agents and Stakeholders Generated by the Forest Sector Trade Distortions in Costa Rica, 1992-1993.

From	To producers of	Millions of US dollars
Forest stewards[1]	Sawnwood	86.3
Consumers A[2]	Sawnwood	14.5
Total to	**Sawnwood**	**100.7**
Forest stewards	Plywood	3.0
Government	Plywood	0.3
Consumers B[3]	Plywood	3.6
Total to	**Plywood**	**7.0**
Consumers B[3]	Government	0.5
Net to Government		**0.2**
Forest stewards (total)		89.3
All consumers (total)		18.6

1. Includes the part lost by loggers, which is about 10 percent of the total reported (see Stewart, 1994).
2. All of the users of sawn timber.
3. All of the users of plywood, such as furniture manufacturers.

Source: Stewart, 1994.

35. The difference between the cost in both countries reveals the difference in technological development of their milling industries.

First, costs are incurred because farmers use what was forested land to grow pasture, maize, beans, and other crops whose economic values are lower than the economic value of timber. Conservative estimates indicate that without trade distortions well managed native tropical forests can generate yearly income of US$270 to US$450 per hectare per year,[36] while most competing agricultural crops yields much less, despite high subsidies. In Ecuador, Southgate (1992) estimated agricultural income of no more than US$20/ha/yr on small farms and cooperatives; and most forest-competing crops in Costa Rica (maize, rice, beans) generate net income of US$90 to US$180/ha/yr, inclusive of subsidies; income from cattle ranching can be as low as US$2.5 to US$3/ha/yr (Stewart and Howard, 1993). In Bolivia, 1990-91 figures indicate that profits for most crops were negative or close to zero. All were less than US$100/ha/yr, except potato (CAO, 1992, and Stewart *et al.* 1993.

Second, indirect cost is incurred because farmers devote land that was no longer covered with native forest to agricultural activities or cattle ranching, while forest plantation would yield income many times greater (without the distortions, of course). Ston Forestal, a reforestation company, reports average growth rate of Gmelina in Costa Rica of 40m^3/ha/yr. At an average log border price of US$100 to US$120/m^3, the gross income is about US$4000 to US$4800/ha/yr, or a net income of about US$3300 to US$4000/ha/yr, after costs are deducted. Even if the average growth rate were 20m^3/ha/yr, the net income would be more than the income generated by cattle ranching or any extensive crop in tropical Latin America. [note: numbers are being rechecked].

Third, society also incurs indirect costs because more land, labor, and capital are allocated to sawmills and manufacturing plants than is socially desirable. These resources could generate more real economic value and income in other areas. It was pointed out above that the resources used to manufacture plywood had negative returns; economic value was destroyed instead of created or added. This represents enormous economic losses to society.

36. Stewart (1994), used estimated border prices of US$180/$m^3$ for native Costa Rican species and extraction rates of 20 m^3 every 15 to 20 years and a 10 percent real interest rate, to obtain those results.

Income Distribution Effects

Another important type of costs associated primarily with forest sector trade policies are the transfers between economic agents and sectors. By depressing stumpage prices, the log export ban forces forest stewards to transfer wealth to the processing industry: sawmillers and plywood manufacturers.[37] It is estimated that Costa Rican forest stewards transferred annually, in 1992-1993, the equivalent of US$86.3 million and US$3 million to sawmillers and plywood manufacturers, respectively (Table 7). Total transfers from Ecuadorian forest stewards to plywood manufacturers were estimated at US$27.9 million per year (production of 85 000m^3).

At the other end, import tariffs on sawnwood and plywood force furniture manufacturers, home builders and other users of these intermediate forest products to transfer important sums to the primary processing industry. In 1992-1993, Costa Rican users transferred US$14.5 million and US$3.6 million to sawmillers and plywood manufacturers, respectively. Ecuadorian plywood consumers, who paid about US$100 more per cubic meter because of the distortions, transferred roughly US$6 million per year to plywood manufacturers (estimated consumption 60 000m^3/yr).

In addition to the transfers to manufacturers, the import tariffs force plywood users to transfer important sums to the government. The Costa Rican government, for example, extracted US$18.6 million per year from consumers of plywood and, in turn, transferred some US$0.32 million to plywood manufacturers through the export subsidy in 1992-1993.

Not unlike many other Latin American countries, the industrialists, especially plywood manufacturers, are a few, wealthy entrepreneurs, while most forest stewards and furniture manufacturers are numerous, low income producers. The industry protection policies are therefore very regressive, since they cause wealth to flow from the poor to the wealthy. Removing the distortions will, therefore, not only improve economic efficiency but also improve significantly the secular income distribution problem that has plagued Latin American countries.

37. When these industries are vertically integrated with the forest, as they are in Bolivia, there are no transfers. Because plywood production in Bolivia is negligible (2000m^3/yr), transfers at this level were not estimated.

CONCLUSIONS AND RECOMMENDATIONS

The evidence presented here leads to the unequivocal conclusion that Latin America's agricultural and forest sector policies have conspired against the environment since their strong anti-forestry bias induced individuals with access to forest to make the rational decision to either convert to agriculture (like colonists) or mine the forest instead of investing in management practices (case of concessionaires).

The reported negative economic development consequences of the forest and agricultural sector policies negate the preconceived notion that the environment in these countries is being sacrificed for the sake of economic development. It is clear from the results that such tradeoff is unnecessary and has not occurred, and that a more neutral (unbiased) set of sectoral policies can achieve the coveted social, economic and environmental goals simultaneously.

Based on these conclusions and in light of the countries' obvious goals of forest conservation and economic development, the general recommendation is to remove the anti-forestry bias of sectoral policies, and improve the stability of the policy and economic environments. In order to achieve these goals, the following specific measures are strongly recommended.

Forest Sector Policies

1. Remove the export ban on all products of species not in danger of extinction.
2. Eliminate all tariff and non-tariff barriers to the international trade of forest products and wood processing technology.
3. Eliminate all export subsidies.
4. Remove all consumption taxes, other than the general sales tax. This includes the "selective consumption tax" in Costa Rica.
5. Establish and fully fund research and extension service organizations targeting both natural and plantation forest management.
6. Once these reforms are in place, direct incentives for forestry will be both unwise and unnecessary. Therefore, all current subsidy pro-

grams —for reforestation and forest management— should be eliminated.

7. Provide tenure security in concessions through adjudication or real long-term contracts.

Agricultural Sector Policies

1. Agricultural sector policies should be devoid of any bias against forestry. Therefore, credit, price support, crop insurance and other policies should be even-handed between the two sectors.

2. Eliminate all legal or de facto requirements for gaining title to forested land.

3. The agricultural colonization process must stop, or at least include forestry as a genuine land use option.

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METHODOLOGICAL APPENDIX

The methodology used to measure the economic effects of international trade policies in the forest sector of each country draws heavily on the theory of international trade and follows many of the procedures developed and applied by Scandizzo and Bruce (1980); Pearson and Monke (1987); and Tsakok (1990).

According to the theory, all tradable goods have a border price, which is equal to the price foreign buyers are willing to pay for a national product placed at a given border point (e.g. a port) or at a point within the country; or to the price domestic importers have to pay for a foreign product placed at similar points. Therefore, the border price of importables is the CIF (cost, insurance and freight] cost at those points, while the border price of exportables is the FOB (free on board) export price. Because the international market offers real opportunities to buy or sell a given product, the border price, which is derived from this market, is also the opportunity cost or the economic or social price.

In order to determine the magnitudes of price and market distortions, the theory and methodology developed two very useful indices: the nominal protection coefficient (NPC) —or nominal rate of protection (NRP), and the effective protection coefficient (EPC)— or the effective rate of protection (ERP).

The NPC is equal to the ratio of domestic border prices (Pd/ Pb), while the NRP = $100*((P_d-P_d)/P_b)$ or $100*(NPC-1)$. A NPC > 1 indicates that domestic prices are above border equivalents, and thus, that domestic producers are being protected or subsidized through trade policies. A NPC < 1 indicates exactly the opposite; and a NPC = 1 indicates either that there are no distortions in the product market or that the distortions cancel each other and, consequently, producers are neither taxed nor subsidized.

The NPCs only account for distortions in the product market, while the EPC, which is equivalent to the ratio of domestic to border value added, accounts for both product market distortions and distortions in the market for tradable inputs. Value added is equal to the price of a unit of the product minus the costs of all tradable inputs used in its production. It is thus the value added by non-tradable or domestic resources of production (labor, land, certain capital, management).

There is economic value added (with undistorted prices) and private value added (prices might be distorted).

$$EPC = \frac{VA_d}{VA_b} = \frac{P_d - SP_{di} Q_i}{P_b - SP_{bi} Q_i}$$

Value added at domestic prices

Value added at border prices

where:

P_d = domestic product price.
P_{d1} = domestic price of the tradable input.
Q_i = quantity utilized of the tradable input.
P_b = border price of the product.
P_{bi} = border price of the tradable input.

A CPE > 1 indicates that the value added at domestic prices is greater than the value added at border prices, and that therefore, the returns to domestic factors of production (land, labor, capital) are increased as a result of the distortions. A CPE < 1 indicates exactly the opposite; and a CPE = 1 indicates either that there is no distortion in both product and tradable input markets or that the distortions in each cancel each other to the point where the value added at domestic prices is equal to the value added at border prices.

Estimation Of Border Prices And Indices Of Protection

In order to estimate border prices, it is first necessary to determine whether the country is a net importer or exporter of the product in question or would be in the absence of existing distortions. The second step consist in estimating equivalent, undistorted CIF costs of FOB revenues at given locations. The third step consist in comparing domestic to border prices; that is, in calculating the indices. The following procedures were followed, on a product basis.

Logs

Had it not been for the log export ban imposed mainly during the 80s, tropical Latin American countries would have been net exporters of logs of many species. The border prices are therefore FOB, port export prices. And since they were lacking after the mid 80s, it was necessary to estimate border prices indirectly. Three different approaches were followed in the case studies to estimate FOB, port prices: 1) the FOB, prices received in Ecuador for logs of two species in 1988 were used as references to estimate border prices for similar or same species in Costa Rica and Ecuador, for the same year, and adjusted for other years; 2) the prices paid in Asia and Africa for species equivalent to those in Latin America were adjusted for freight and quality differences; and 3) actual FOB prices received by Costa Rican exporters in late 1993 for plantation logs (Gmelina, Teak) were used as references.

The last method does not require discussion. The first method consisted in comparing the FOB prices paid to exporters in Ecuador for Brosimum utile and Dialyanthera spp to the domestic prices paid in each one of the three countries for equal or similar species —after making adjustments for difference in freight costs. Although the data is outdated, it is robust since the estimates are based on actual prices paid, and the species are common to the other countries.

Second method

Tropical wood experts provided the equivalencies between Bolivian, Costa Rican, and Ecuadorian species and the species exported from Africa and Asia. It was assumed that, except for minor adjustments, European importers (users) would pay the same for equivalent Latin American species. In the Costa Rican study, for example, Caobilla was compared to Sapele (that the price of caobilla was reduced by 20 percent because of quality differences); Gallinazo and Javillo, with Ayous; Cocobolo, with Iroko; Ceiba, with Ceiba from Ghana; and Cedro, with N'Gallón. All of these, except Ceiba, were exported from Cameroon. FOB, Douala (Cameroon) prices were obtained from Tropical Timbers published in England and from MNS Tropical Timber Report published in Switzerland.

The cost of freight played an important role in the estimation process, as exemplified by the Costa Rican case. Because of the lack of experience in exporting logs, it was necessary to draw on the experi-

ences from Chile and Honduras. Average freight rates from Chile to its principal markets (Middle East, Japan) are US$45-50/$m^3$. The freight rate from Conception, Chile to Ambers, Germany for sawnwood is US$32/$m^3$, and US$36/m^3 to Towerwharf, England. On the other hand, the freight rate for sawnwood exported from Puerto Cortés, Honduras to Holland, Germany and Belgium was US$84/$m^3$ in 1993. Based on this information, and in order to be conservative, the following two rates were used to approximate the freight cost from Limón, costa Rica to Europe: US$50/$m^3$ and US$80/$m^3$. On the basis of reports obtained from Cameroon and Ghana, a range of US$50 to US$60/m^3 was used to approximate the freight cost from Africa to Europe.

Once the specie equivalencies and freight rates were determined, the border price estimation (upper and lower bound) was straightforward:

FOB, Limón, C.R. = FOB, Douala, Cam. + freight from Africa to Europe freight from Europe to Limón.

Sawnwood

Due to the absence of significant distortions at this level, NPCs were not estimated for Bolivia or Ecuador. Costa Rica would have been a net exporter of several tropical species, but sawnwood exports were banned until August 1992. As a consequence, actual export prices for the majority of the species were not available. Fortunately, Brazil exports to Europe sawnwood of more than 30 species equal or equivalent to the Costa Rican species, such as Guapinol, Cedro, Níspero, Fruta Dorada, Almendro, Laurel, Botarrama, Nazareno and Caobilla. FOB, Belém, Brazil prices were adjusted, following the methodology described above,in order to estimate equivalent border prices at Port Limón, Costa Rica. Adjustments were also made for differences in drying methods. The Brazilian Association of Industrial Wood Exporters (AIMEX) recommends reducing the price of Cedar US$40 to obtain the equivalent to "air dried"; the price of Fruta Dorada was also reduced by US$20 for the same reason. The equivalent FOB prices were thus approximated as follows:

FOB, Limón = FOB, Belém + Freight Belém to Europe Freight from Europe to Limón.

Plywood

Without the distortions, Ecuador and Costa Rica would have been net importers of plywood. In accordance, there are two ways to obtain the border prices and NPCs: 1) Assume that the NPC is equivalent to the tariff rates, or 2) utilize the information generated by actual imports to estimate the border prices and the NPCs. Due to quality differences, the latter is less precise.

The Tariff Method

This is the easiest method and the most exact when the tariff is the only distortion. It is assumed that the domestic price is not affected by other factors, and that it is higher than the border price by a percentage equivalent to the tariff (NRP = tariff rate). However, it should be noted that because the structure of the plywood market is monopolistic in both Costa Rica and Ecuador, the NRP is higher than what the tariff alone suggests. In these cases, and in spite of its inaccuracy, the other approach is preferable.

The Price Difference Method

The Costa Rican case illustrates the approach. In terms of species and qualities, the plywood imported from Korea, Brazil, Peru, and Nicaragua is comparable to what is produced in the country. Therefore, the expenses incurred to place the product in San José (its capital) was added to CIF, Limón or Port Caldera prices in order to obtain the equivalent border prices at the ex-plant level in San José. These were then compared to the domestic prices at the same level, for same thickness and quality, to obtain the NPC estimates.

These NPCs represent the protection received by the domestic industry from imported plywood. The portion exported by this industry is obviously not protected from imports; it receives nominal protection via export subsidies (NRP = % subsidy).

Furniture

In the case of furniture and related products, the NRP was equivalent to the subsidy, when exported, and to the import tariff, when sold in the domestic market.

Effective protection

The EPCs were calculated for sawnwood in Costa Rica and for plywood and furniture in all three cases. Detailed costs of production information was obtained from firms in each country. The border prices of the tradable inputs were approximated by removing the distortions (mainly removing tariff and subsidy effects) from observed market prices.

Estimation Of Producer Subsidy Equivalents

In the case of Costa Rica, this index includes a subsidy from the marketing system or pricing policy, an interest rate subsidy and a government expenditures on research and extension subsidy. To obtain the pricing policy subsidy, the quantities produced were multiplied by the difference between the domestic and border prices. To obtain the credit subsidy the difference between the interest rates for commercial activities and those paid by small farmers were multiplied by the total amount of credit provided per year. The index is estimated as follows:

PSE = [Sum total of (price subsidy + credit subsidy + Research and Extension expenditures] divided by (Pr* Total Quantity produced).

Estimation of the Direct Economic Costs

In the Costa Rican case, these costs were estimated for sawnwood and plywood production. In the first case, it was assumed that the country would have exported 30 percent of its logs without the prohibition, and the revenues that such exports would have generated were compared to the value added by the domestic processing activity. The loss of economical surplus (LES) was calculated as follows:

LES = (P_{ft} * Qt) (Ppm * Qm) + Cost of sawing;

where:

P_{ft} = border price of the logs; Ppm = market price of sawnwood; Qt = cubic meters of exportable logs; and Qm = cubic meters of sawnwood produced.

The Costa Rican mills indicate that each 70m3 of sawnwood produced per year generate a permanent employment; therefore, total employment generated is equal to Qm/70, and the cost of each job generated is equal to (LES*70)/Qm.

The cost of banning log exports to produce plywood domestically, as well as the cost of each job generated, was calculated similarly.

LES = Economic value of the logs + costs of processing them (it was 50 percent) the cost of importing an amount of plywood equivalent to what was being produced.

FOREST MANAGEMENT POLICY SYNTHESIS: APPLICATIONS TO CENTRAL AMERICA[38]

George Johnston
Hilary Lorraine

INTRODUCTION

To achieve sustainable management of forest resources a large number of policies, both forest and non-forest, will need to be changed or put in place. The analysis in this section focuses on policies related to forest management and their general and specific effects on resource use decisions, although other policies may have a greater effect. Many factors will determine whether forest management policies are crucial. These factors include the amount of public versus private forestland, the quality of each forest and the degree of deforestation, the off-site effects of deforestation, and the relative demand and supply of timber, among others.

Forest policies affect not only the value and use of timber and non-timber forest resources but also the willingness of those who control the resource to manage for long- or short-term objectives. These policies, plus non-forest sector policies, affect the relative value of forest activities and services compared to other land uses. The non-forest sector policies often have a greater, often unanticipated, influence on resource values and human behavior resulting in deforestation than do forest policies. Nevertheless, changing behavioral incentives to encourage long-term management rather than short-term resource mining will require changes in forest policy as well as in non-forest sector policy. While there is no ideal set of forest policies for all contexts and issues, policies and institutions will need to address market and non-market benefits of forest management as well as address the institutional elements of policy implementation which should determine the effective sequencing of policy reform.

Problem Definition

Deforestation and forest degradation can result from a number of activities such as commercial logging that mines the resource, fuelwood

38. This document was published by the USAID's REMARM and DESFIL Projects in "The Green Book, Part 3: Forest Applications."

gathering, land conversion to agricultural and livestock uses, and infrastructure and industrial expansion into forest areas. These activities are usually highly interdependent. For example, commercial logging and road construction open up areas for agricultural expansion. Most deforestation is occurring on public land which is a de facto open access resource.

There are a large number of outcomes associated with deforestation. From the standpoint of economic growth deforestation is not per se bad. If the profits from forest products are invested in long-term productive activities, then from an economic standpoint development might be sustainable even if forest production is not sustainable. However, these short-term economic returns do not account for environmental losses, long-term economic productivity of the resource, and the welfare of future generations. In addition, the beneficiaries of commercial logging are usually the wealthy, and the profits are seldom used for improved resource management.

Timber Concessions

In many developing countries the government is the de facto owner of most forestlands and resources. Commercial use, especially for timber extraction, is usually managed by a system of logging or forest management concessions or licenses. The duration of the concession is usually short or insecure which provides a disincentive to long-term management of forests. Commercial timber operations often selectively harvest high-value species and leave the area open for land conversion to agricultural and livestock uses. Reinvestment of timber profits into timber management does not occur because no benefits would accrue to the concession holder. In many countries opposition to long-duration timber concessions developed because of the cut-and-run behavior of foreign-owned timber firms. Ultimately, however, the duration of the concession may not significantly affect the behavior of firms if other policies encourage short-term economic activities instead of investment in long-term production activities or favor other sector activities such as agriculture or livestock.

Forest concessions (and in some countries management of timber on private land) are subject to conditions and restrictions and must fulfill the requirements of management plans that address those conditions and restrictions. These include allowable annual cut, prescribed and

proscribed practices, and species and size cutting restrictions. In many cases these restrictions are not enforced and the technical resources needed to support management plans are not available. Concession management will remain ineffective if the public institutions responsible for implementing concessions and management plans have limited resources and the scale of the public forest estate is large.

The awarding of concessions is generally administrative and non-competitive. Non-price allocation of concessions based, for example, on political awards precludes the potential of a competitive process that would increase revenues to the state and promote long-term resource management.

The cumulative effect of these aspects of the concession system is to favor a few well-connected interests who have timber cutting permits with little or no management oversight. Without management and technical infrastructure and given the existence of economic incentives that favor short-term activities, concession systems do little to control resource depletion and conversion to other uses. For the concession management system to operate effectively, concessions must be awarded in open competition, be secure in some sense if managed well, and safeguards must be in place to assure good management. In addition, decentralization of resource management from the central government to local resource users and an increase in the participation of local residents in the management process will be needed.

Forest Charges

There is a wide array of potential charges on public timber. In theory, the concept of economic rent (profit arising from natural limitations in supply) suggests that forest charges could be much higher than they generally are. Raising charges to capture more of the economic rent for the public treasury, and perhaps using those funds to improve forest management, also may improve long-term resource management by reducing or eliminating windfall profits. In addition, low forest charges have resulted in harvesting of marginal timber areas, have depressed prices for private timber, and have encouraged high-grading, among other effects. The exact effects on harvesting depend upon the type of charge. Issues to consider in reforming charges on timber include the amount of revenue produced, the ease of administration, the efficiency in the use of forest products, and who wins and loses from the changes.

For example, assessing charges on timber removed rather than timber in the stand encourages highgrading. In addition, flat charges and ad valorem taxes, if differentiated by species, would reduce highgrading. However, such a system is more difficult to administer.

Typically, forest charges do not capture much revenue for the government. The result is an incentive system that promotes competition for economic rent and results in windfall profits for concession holders. Where the award of timber concessions is not transparent and not competitive, bribery may result. Again weak institutions limit the ability to establish forest charge systems that promote long-term resource management.

Forest Industry and Export Policies

A common feature of forest policy is a set of export controls and taxes designed to encourage and protect domestic processing of timber. These may include log export bans, export taxes, differentiated rates for processed timber products, tax relief or subsidies, and direct public involvement in the timber industry through parastatals. Protective policy structure undervalues the timber resource, encourages inefficient processing industries, and encourages overly rapid resource use as governments allow timber cutting to support the domestic industry.

Arguments for freer trade contend that eliminating protective policies will raise resource values, encourage efficient processing as domestic industries respond to international competition, and lessen the need to support no longer inefficient industries. However, the history of boom-and-bust in logging suggests that higher prices will result in unsustainable forest management unless: the government has the capacity to manage the rate and location of harvesting and other policies exist, as noted above, to support a long-term sustainable resource management regime.

Overall economic development may be sustainable if the profits from timber activities are successfully invested in other sectors. But sustainable forest management would require both timber cutting and environmental controls beyond the capacity of most developing country forest management institutions. Therefore, short term environmental losses would result in long term economic and welfare losses. Freer international trade and presumably higher prices for timber will result in

increased windfall profits unless firms have secure rights to manage forestland and the government is able to capture sufficient economic rent.

Private Forest Management

Regulations in many countries also undermine sustainable forest management on private lands especially when conditions and restrictions applied to cutting on public land are also applied to private land. Cutting permits are required; often a long, cumbersome, and corruptive process. The cumulative effect is to create an atmosphere of uncertainty surrounding the tenure and use rights to forestland. While many owners ignore and evade the requirements, they will also not invest in long-term management of a resource over which their control is uncertain.

While clearer rights and responsibilities may be necessary conditions for improved resource management, they are not sufficient conditions to guarantee that outcome. Many policies and circumstances affect the incentives of timber firms including macroeconomic or sectoral policies and conditions that favor short term investments. These issues should be considered when discussing privatization of forestlands as an option because firms can adopt non-sustainable practices, even with secure tenure. For example, in the early 1980s the Georgia Pacific Company was accused of rapid cutting of old growth forests in order to help pay for their office building in Atlanta. Therefore, enforceable regulatory safeguards are needed to guarantee that other values and interests are addressed if the public forest areas are privatized.

Reforestation and Plantation Management Incentives

Reforestation is defined as restoration of degraded stands, enrichment planting, or the establishment of plantations. There are two broad policy approaches to reforestation: fiscal incentives and government or donor sponsored projects.

Fiscal incentives for reforestation may be tax breaks, subsidies for inputs, reimbursable deposit fees, and others and they may be applied to either public land concessions or licenses or private land manage-

ment. The effectiveness of these incentives often depends on the effectiveness of the tax system, the size of the exemption or subsidy, and the target beneficiaries. If a tax is paid only by larger, easier to monitor corporations, then only they will use the incentive. If the relative importance or size of the benefit is small and/or the program poorly implemented, then actual on-the-ground reforestation will not occur. While some reforestation incentives target smaller resource users, many favor larger, wealthier elements of society. In some cases, timber plantations are based on such subsidy systems. In other cases, the subsidies accrue to the wealthy, but reforestation does not occur because of ineffective management.

The second approach to reforestation entails a wide array of government and donor-sponsored projects. The government-managed projects have been disappointing. More success has been achieved where reforestation has been a part of a process to empower local communities and support their management of reforested areas. In addition some new programs subsidize the management of natural forests.

Non-timber Forest Products

The set of policies related to non-timber forest products is less developed than forest management policies; some governments treat non-timber products the same as timber. Management plans and/or laws and regulations may be required to address the sustainable management of specific resources (e.g., resin or chicle). Frequently these aspects of forests are ignored. Given the high correlation between the preservation of biodiversity and indigenous people's rights, this aspect of sustainable forest management policy may become a more important policy dialogue focus in the future.

Policies in Central America

This section summarizes forest management policies in six Central American countries: Belize, Costa Rica, El Salvador, Guatemala, Honduras, and Nicaragua. Subsequent elements of this volume provide the detailed information from which this summary is taken.

Belize

Timber concessions in Belize are generally one year in length and are usually a cutting permit for a specific volume of timber. Renewal is possible but uncertain and the concessions are often awarded as political favors. Cutting of protected species is technically prohibited while other requirements support high-grading. The institutional capacity to monitor concessions is weak.

The forest revenue system consists of royalties differentiated by species and quality, but the royalties are low relative to the actual value of the timber. In addition, a royalty is also applied to timber from land parcels greater than 100 acres, which promotes less private land management and greater use of public lands. As with concessions, the ability to administer the tax is weak.

Belize also prohibits export of raw and semi-processed logs. This has resulted in a generally inefficient forest processing sector. In addition, short-duration licenses for sawmillers prevents investment in better equipment.

In aggregate, the forest management laws and administration of Belize result in unsustainable resource management. Few incentives exist to invest in long-term management because tenure is insecure, windfall profits are high, and management safeguards are generally unenforceable.

Costa Rica

Because Costa Rica has very little public forestland outside of protected areas, the concession system is not important. No concessions are being awarded and previous awards were cutting licenses. However, conditions, restrictions, and requirements for management plans apply equally to public and private timber land. Management plans are usually cutting plans with little actual oversight ability by local and national authorities. Over-cutting is common, charges on timber extraction from both public and private lands are low, and the fee structure and management requirements limit long-term management of private land.

The domestic wood industry in Costa Rica is protected by tariffs, bans, and procedures that regulate timber trade. Log exports are pro-

hibited and high tariffs on processed wood products inhibit competition, resulting in inefficient domestic processing.

Reforestation policies include exemptions from the property tax, the income tax on wood harvested from plantations, and import duties on reforestation equipment. Many of these benefits have accrued to wealthier elements of the country. Some areas reforested were less suitable than others according to Costa Rica's land use plan.

The cumulative effect of this policy structure is unsustainable forest resource management. Owners of private timber lands have less incentive for long-term management because the value of the resource is depleted because of export restrictions and import tariff for wood products. Domestic wood processing is inefficient. Reforestation is primarily manifested as subsidies to the wealthy while broader based policies targeted to smaller participants have yet to be substantively implemented.

Cross-policy Analysis: Deforestation

Many policies contribute to deforestation and are often more important policy sources for behavior resulting in deforestation than forest management policies. While forest management policies affect a resource user's willingness to invest or not invest in long-term management (or to account for environmental goods provided by forests), other policies affect the investment options available and their relative value.

Macroeconomic policies determine the economic climate in which investment decisions are made. High inflation or high real interest rates reduce incentives for long-term investment. Sectors where economic returns are quicker, such as agriculture and livestock production, will be favored over the much longer-term investment horizon for forest management. Stagnant economies increase rural poverty and increase pressure on open access resources. Trade and exchange rate policies may be biased against resource sectors such as agriculture and further increase rural poverty. On the other hand, policy changes that favor agriculture will result in resource depletion in the absence of other policy reforms. For example, increasing prices for agricultural products by exchange rate reform will spur increased production of export crops on open access land if tenure reforms are not also implemented. In addition, situations where there is a large fiscal deficit reduces the ability of the government to manage resources.

Sector-specific policies for agriculture and livestock make these sectors more attractive. Why manage land as forests when subsidies exist for other activities? In combination with some macroeconomic policies, agriculture and livestock policies are generally the primary policies that lead to deforestation. These policies include credit subsidies, better collateral requirements, credit for "land clearing," and subsidies for agricultural equipment and livestock operations. In addition, government services and development projects generally favor agriculture and livestock activities.

Land tenure contributes to deforestation activities in a number of ways. Forests, whether de jure in public or private ownership, are often de facto open access resources and easily invaded. Formal government colonization and settlement policies may make land clearing a requirement for proof of use. If the land is still forested, then it is considered idle and potentially subject to expropriation or idle-land taxes. The statute is often enough of an incentive to induce land clearing. However, the potentially greatest land tenure dynamic leading to deforestation is the skewed distribution of land. Large landowners own and frequently underutilize land suitable for more intensive uses. The skewed land distribution and the absence of land markets, forces poorer people onto marginal lands on hillsides or forests. Land use planning generally does not exist.

Energy policy also affects the use of forests. Fuelwood gathering by both urban and rural people and industries contribute to deforestation. Rural fuelwood collection is often not officially controlled; when controls exist, they are often unenforced. Similarly, laws designed to limit fuelwood use in urban areas have not been successful. The relatively high cost of alternative fuels favors the use of fuelwood from open access forests in many urban-oriented industries.

El Salvador

There is very little productive forest left in El Salvador. The concessions are for one year, awards are made administratively, and management plans are simply cutting plans. Extraction of timber from private land requires compliance with sustainable management practices, but enforcement and monitoring are ineffective. Nominal fees are required for harvesting from mangroves. Regulations and fines are established to encourage reforestation but they are ineffective. Land tax exemptions

exist for reforestation, but the land tax is seldom paid and therefore does not provide the desired incentive.

Many of these issues are addressed in the draft Forest Law, but effective management will still remain a troubling issue.

Guatemala

Guatemala has significant forest resources but is experiencing a rapid rate of deforestation. The system of laws and regulations governing the role of the state in the management of forests and protected areas has been changed recently and the outcome of those changes is uncertain in terms of solving the problem. The approach maintains a significant role for the central government.

Concessions have not yet been awarded under the new laws. The concessions are to be longer, either 10 or 25 years depending upon which institution manages the areas. The award process is to be competitive and charges for the concessions are to be based on the competitive bidding process. The conditions and restrictions are imbedded in sustainable use management plans. Both the management plans and the charge basis require institutional capacity not yet in place.

Timber cutting on private land requires cutting permits and payment of a license fee. Both requirements are generally ignored, but provide disincentives for long-term management and result in corruption.

Export of raw logs is generally prohibited, which depresses the value of the timber resource. Evasion of the law is frequent for some high-value species. The log ban and import restrictions on some imported processed wood products have resulted in inefficient domestic wood processing industries.

Reforestation policies include mandates, but these are usually ignored. Reforestation deposits are also collected but are generally forfeited because they are too small relative to reforestation costs. Fiscal incentives for reforestation include income tax credits and land tax credits. Because these taxes are usually only collected from large corporations, if at all, reforestation tends to occur only when wealthier interests are served.

Honduras

Honduras has also recently passed comprehensive legislation on forest management. Concessions are awarded generally for cutting and not for long-term management. Most concessions have been awarded administratively, but awards are supposed to be made competitively. Management plans are required but are more frequently simple cutting plans. Charges on timber harvested are much lower than the value of the timber. Private forestland management is also subject to management plan requirements. These also appear to be mostly cutting plans.

Export of raw and semi-processed logs is prohibited. This reduces the value of timber resources and also encourages an inefficient domestic wood-processing industry.

In 1993, a new reforestation incentives law was passed. It provides technical support, protection from expropriation, and fiscal incentives in the form of tax and tariff exemptions. Whether this comprehensive system achieves its objectives depends on implementation. Reportedly implementation has been held up because of the budget impacts on the implementing agency.

Nicaragua

An interim forest decree adopted in 1993 controls the use of forests. Rather than concessions, the language of the decree refers to contracts and extraction permits. The parastatal charged with the administration of the decree can also participate in joint ventures. No contracts have yet been awarded. Management plans and transport licenses are required but no institutional capacity exists to monitor performance. Payment for the value of the timber is required but the system is not yet in place. Except for a small government tax, no fees are required for harvesting from private land, although a cutting permit is required. Inspection is mandated but not at the present implementable. The decree does not address reforestation. A small donor-supported fund has been established to partially reimburse reforestation costs. Export of logs is prohibited.

Conclusion

Deforestation in Central America is a significant problem and the forest management policy structure is a contributing factor. Those factors, which vary from country to country, include:

- Centralized government ownership or regulations without the ability to effectively manage and implement those responsibilities and without allowing participation by other key players.
- Management is designed for timber concessions that favors special interests and do not support sustainable forest management practices.
- Regulation of timber management on private land, which creates uncertainty and reduces incentives for long-term resource management.
- Limited capture of economic rent from public lands by governments which results in windfall profits for concession winners.
- Trade policies that prohibit or limit log exports and processed wood imports which results in inefficient domestic wood-processing and reduced value for timber resources.
- Reforestation incentives that favor mostly wealthier elements of society.
- Government reforestation and forest management projects that do not adequately involve local communities.
- A system that supports widespread corruption and bribery to supplement low-paying government salaries and results in evasion of regulations and management plans.

Reform of the forest management policy structure will need to include many elements such as: tenure security, collection of economic rent, freer trade, better management, less restrictive policies for private forest management, and community-based reforestation and forest management efforts, among others. Some guiding principles for policy development in this context include:

- Policies that are easy for governments to administer.
- Improved local and community participation in resource management.
- More transparency in decision processes.
- Better accountability by all participants.
- Greater efficiency in resource use.
- Incorporation of environmental values in the decision-making process.
- Greater consideration of equity within and across generations.
- More integration with other policies affecting forest management.

THE LEGISLATIVE PROCESS IN THE FORMULATION OF FOREST AND NATURAL RESOURCES POLICIES

Miguel Urioste

EXECUTIVE SUMMARY

The law formulation process in Latin American and the Caribbean countries has progressed with the consolidation of democratic regimes. However, many legal norms and procedures are inadequate. At the root of these inadequate procedures we find an absence of mechanisms and practices to ensure interaction and communication between the executive and legislative branches of government, between these and representative institutions of the civil society and, finally, between these three institutions and the different programs and international cooperation agencies.

To all this we must add specific problems, such as those resulting from the inadequate information base; the persistent divorce between the political system and civil society; the lack of a legislative framework that would allow progress on the preparation of specific laws; and the contrasting interests between utilitarian approaches and the long-term perspective of sustainable development. Furthermore, problems are compounded by the activities of international consultants and international cooperation agencies that operate with an unrealistic perception of the corrupt processes involved in the allocation of natural resources. This results in a vicious circle of impunity and uncertainty affecting private property; weakness of public institutions that represent the democratic regime; unrealistic conservation strategies that see natural resources as archeological entities that must not be touched; and finally, inadequate parliamentary procedures anchored in the past. There is a fear of change.

All these elements conspire against the adequate formulation of laws related to forestry and sustainable development.

INTRODUCTION

Clearly, one of the most basic problems in implementing sustainable development policies is the lack of legal instruments and of institutions that can use them efficiently. In other words, state reforms and the reform of state institutions have lagged behind the design of public policies. The problem is more serious when policy designers and lawmakers do not communicate well, or even worse, when they are disconnected from the managers that execute such policies.

This triple divorce is recurrent in many Latin American countries and constitutes an expression of the institutional democratic weakness of the region. To these internal problems we must add the behavior of international consultants and experts and of the multi- and bilateral-assistance agencies. This is the fourth divorce.

Frequently, international cooperation initiatives, which have such a determinant role in our countries, give priority attention to agencies of the executive branch of government (ministries, secretaries, etc.), and center their attention on the design of new development policies. Despite the above, these initiatives have contributed to the abandonment of state-centered and exclusively market-oriented approaches, and now foster economic efficiency, social equity, and environmental sustainability.

In many Latin American countries communication between the executive and legislative branches is inadequate. The executive branch prepares law proposals and the Congress rejects, modifies or approves them; the legislative branch prepares legislative projects following initiatives from a parliamentary commission, a political party or institutions from the civil society that do not participate in the business of the executive branch. These latter initiatives, originating in the civil society, usually are dismissed.

Analytical Framework

This paper is based on the authors' every day legislative experience as well as on his experiences as a consultant. Parliamentary procedures utilized in several countries of the region were examined, with the conclusion that procedures and problems are roughly the same in all Latin American countries.

The experience of the last two years in Bolivia, when the formulation of a new **Forestry Law** was initiated, was particularly valuable. This law has still not been approved due to problems described in this document. The author's participation, first as an opposition member of the Parliament during 1989 to 1993, and later, as a member of the government coalition during 1993-94, and as a director of a rural development NGO[39] and as a consultant to several cooperation agencies and advisor to peasant organizations, have all facilitated an integral vision of this complex subject.

The Forestry Law Design Process

The present forestry legislation is a decree law issued in August 1994, during General Banzer's military regime. The nature of this decree law has allowed corruption, inefficient use of forest resources, and the proliferation of practices leading to degradation.

For the last three years, the need to count with a new forestry law that would eliminate the shortcomings of the current norms and induce sustainable management practices has become evident. Such legislation should lead to acceptable social returns, maintain the productive capacity on the various ecosystems and generate incentives to private investments.

Currently the sector generates about $40 million in foreign exchange per year and about $20 million from goods consumed in the country. Fifty percent of the Bolivian territory is covered by forests (50 million ha) with timber or other forest products potential. This wealth of natural resources represents important capital for increasing national income and foreign exchange. The materialization of this potential requires adequate legal, policy and institutional instruments.

Keeping these considerations in mind, and on the basis of a sector review, several forestry law proposals have been formulated.

In may 1992, and with the support of the World Bank and FAO, a team was hired, composed of national and international consultants

39. Tierra, Taller de Iniciativas en Estudios Rrurales y Reforma Agraria (Workshop on rural studies and agrarian reform).

working under the leadership of the Environment Commission of the Chamber of Deputies and the Secretary of Environment. The team produced a proposal in December, 1992. As part of the proposal's preparation, two consultative workshops were held involving specialists on the subject.

During the first six months of 1993, the project was shelved because of preoccupation with national elections. With the change of government, the project was re-examined in August, 1994 and quickly passed by the Lower House. Then, it was sent for approval to the Upper House, where it has stalled for months. Its approval has been blocked by opposition from the productive regions and by the entrepreneurial sector.

The main themes for discussion are:

1 The right to property, which is to say, the manner in which forest concessions, either permanent or temporary, are granted.

2 The tax paid per unit of area as compared with harvestable volume.

3. Payment for additional grants and benefits.

4. The institutional framework needed to separate revenue collection from the incentive and control functions.

The various divorces mentioned above are expressed by the following facts:

1. There was insufficient assistance from international agencies, even though there were two consultations with the entrepreneurial and technical sectors.

2. Participants didn't adequately reflect the points of view of the interest groups involved.

3. The consultation process was not systematic enough to adequately include regional and group interests.

4. It was impossible to reconcile a long term social vision with the short term interests and the priority given to immediate profitability by entrepreneurial groups. All these divergent positions were set before the consultations.

5. At parliamentary level, these conflicts reached crisis level, thus effectively blocking discussion in the Upper House.

It is very difficult to predict whether this law proposal will be approved by the Upper House. However, it is evident that Bolivia can not tolerate and perpetuate this obsolete legislation.

Recurrent Problems in the Formulation of New Laws in Latin America

Unreliable Information Bases

Information sources are generally unreliable. Data on distribution, land tenure and use, soil use, harvests and reforestation, export volume and values, legal and illegal, etc., are very questionable. Often this information is insufficient or simply misleading and does not reflect reality.

Despite the above, it is possible to detect trends and processes that confirm the deterioration of the natural resource base, both in quality and quantity, as well as the decreasing availability of land and water per unit of production.

The scarce or inadequate information works against the policy formulation process and the adequate preparation of laws. In cases when information is available, it's usually dispersed and between different organization and retrieval systems. Because of this situation, lawmakers frequently act based on distorted information and mistaken assumptions.

Information, understood as the result of observation and analysis, cannot be the result of personal lectures or dogmatism. It must be obtained though personal experience, the understanding of needs and demands of each community and of the society as a whole.

Law proposals based on illuminated —but utopian— ideas commonly fail because they have been imposed to serve pre-established conceptual models rather than to respond to the principles of equity, sustainability and efficiency.

Difficulty in Attaining Consensus

During the last few years, the democracies of Latin America and the Caribbean have attained a great deal of political consensus. Important agreements among political parties have been achieved. However, political parties still fail to represent the largest majorities.

This is because a large part of society doesn't feel represented by political parties or the representative parliamentary system. Even worse, a large part of society doesn't feel affiliated with the "political class"; and there are plenty of reasons for this feeling. Thus, there is a crisis of representation.

Public laws or policies generated exclusively by political groups can achieve political consensus, but not the support of social coalitions. It's difficult, but nevertheless possible, to achieve agreement between the policy designers and policy makers, but it's much more complex to incorporate sectors of the civil society into this consensus.

Entrepreneurs' organizations (agricultural, forestry producers) indigenous and peasant organizations (or communities) often see their interests as beyond negotiation. Productive regions with an abundance of natural resources consider themselves to be the owners of these resources and demand special treatment. In addition to this difficulty in obtaining political consensus and reconciling sectoral, institutional and regional interests, we must add the difficulty in harmonizing these interests, based on universally accepted criteria and technical norms.

Specific Norms Used in Place of General Norms, or Framework Laws without Specific Norms

As a result of corporate, institutional or regional pressures, partial legislative initiatives lacking a general frame of reference and aimed at specific aspects are often submitted for approval. It's common to find legislative proposals on specific aspects, dealing with land, irrigation, forest resources, etc. although there is no legal framework dealing with environment, territorial planning, natural resources or sustainable development.

The opposite case is also evident. There are situations in which broad laws serving as a frame of reference exist but specific norms are absent. A case in point is the Bolivian environmental law which regulat-

ed the basic principles for environmental and natural resources management without elaborating on specific sector features. This legal framework has not been followed up with specific laws dealing with water, soils, territorial planning, forestry and other sectors.

The above is not circumstantial, but rather the evidence of the weaknesses of natural resources management in the region. Nevertheless, some important advances on the subject have taken place in the last few years.

This is the explanation for the existence of overlaps, contradictions, legal gaps and incompatible regulations in the present legislation.

Incompatible Economic Interests

In many countries of the region, development thinking continues to be oriented towards the extraction of renewable and non-renewable natural resources. There are schools of thought that support the indiscriminate export of raw materials with no added value. This has characterized the case of mineral resources which were exploited until they were depleted or international prices fell to very low levels. The management of tropical and Amazon resources follows this economically inefficient logic that is also inequitable and environmentally unsustainable.

Beyond the entrepreneurial desire to generate immediate wealth, profits, employment and growth, the unstable nature of our institutions and the vertical structure of their management have fostered corrupt practices in natural resources management. New laws are aimed at stopping these processes.

The problem is that certain interest groups use extractive and exporting sectors to obtain unusual rewards —both legal and illegal— which they aren't willing to give up. Public sector staff take advantage of the legal chaos and faulty administrative procedures to obtain enormous illegal gains. They understandably oppose the new law because, if it were approved, they would lose these advantages. It is ironic that those who would benefit from the new law have also fought it, vehemently joining the opposition either because they do not understand its legal principles or are manipulated and misled by other interest groups. It's precisely for this reason that indigenous peoples, or some regions of the country generally ignored in the formulation of laws, are easily manipulated to obtain their opposition.

Inadequate External Cooperation

Some countries of the region, particularly the poorest and most underdeveloped, are subject to almost compulsory international advise and cooperation processes. Many of these programs are not coordinated and create chaos in recipient nations. Most missions are composed of high-level staff who often dictate public policy and laws. This cooperation is tied to external financing.

Everybody knows that the region has the highest rates of exclusion and poverty. This makes international cooperation necessary. However, it's no secret that during the last decade international cooperation has exceeded certain limits, and threatens self-determination and sovereignty.

The Latin American external debt grows at the same rhythm as the multi and bilateral cooperation programs and, as a consequence, very often international consultants intervene in ways they shouldn't. It 's easier to dictate ideal policies and prepare perfect laws than fight the opposition, obtain their approval in the Congress and, finally, implement them efficiently. Normally, the external consultants are not present in the country when these stages of the legislative process take place.

Scientific and professional support to the legislative work of the Congress is extremely inadequate. This is a notorious distortion of international cooperation: it normally concentrates its action on the executive branch of the government.

Should We Start From Zero?

It can be statistically demonstrated that, in most cases, processes governing access to land and to other natural resources have not followed legal norms and principles.

Despite numerous agrarian reform programs, access to land and forest resource use in most Latin American countries is not equitable; access has been achieved by concentrating large amounts of land and forest in few hands. The territorial disorder, uncertainty and the lack of transparency of property rights on forests and land is at least as notorious and damaging as obsolete legislation.

In international fora it's common to hear that it's better to forget past distortions. However, it's not possible to achieve progress if these violations of the law are ignored. This would be equivalent to granting impunity for transgressions of the law. Many grants and concessions have been obtained in the region through manipulations of influence, corruption, and by violating the law. In these circumstances, the common citizen may ask, why do we need new laws if they are going to continue to steal? The modernization of the forestry law or of those dealing with land and the agricultural sector must proceed in tandem with the depuration of private and public institutions. It's not possible to achieve equity, or development with equity, based on impunity. Impunity sows the seeds for inequity, inefficiency and ecological deterioration.

Institutional Weaknesses

In some countries, the practice of democracy continues to be formalistic, without much substantive progress. If democracy is only representative-parliamentary, and all representative power is restricted to the party system, resulting laws would express the wishes of the civil society only partially; they would not represent the majority of the country's population.

Unfortunately, obtaining citizens' participation in the daily political exercise is not perceived as a condition for qualifying the process of formulating laws, and even less in the case of natural resources and sustainable development legislation.

The process of modernizing forestry or land legislation is not associated with the exercise of democratic rights, with representative and participatory democracy. Thus, it's not possible to incorporate into these laws majority and minority criteria, and those of NGOs and other institutions, the church, regions, etc., and apply them in a coherent manner.

It's opportune and relevant to harmonize the legislative process with the development of democratic institutions, with popular participation. The weakness and fragility of these institutions are an expression of the incipient development of democracy in Latin America and the Caribbean.

Extreme Conservation: Do not Touch.

As a defense mechanism and as a way to put a stop to natural resource degradation and deterioration in the region, some extreme

positions have materialized —ecological, conservationist— according to which there is no possibility for sustainable development. These schools of thought have been adopted by various NGOs and by some indigenous groups.

The damage caused to natural resources is so extensive and extreme that it would appear that the only way to preserve them is by prohibiting their use. This simplistic concept poses obstacles to the legislative process.

When these ideas are widely disseminated by the media, development opportunities are lost and a false perception of growth is widely spread.

Some law proposals have their origin in groups that embrace this concept and are in direct conflict with proposals from entrepreneurial groups that give high priority to short term returns. Both extremes make it more difficult to achieve consensus and the minimum levels of agreement required to obtain legislative approval.[40]

Obsolete Parliamentary Regimes

Sovereignty rests with the people; it is inalienable and imprescriptible. The power to exercise it is delegated to the judiciary, executive and legislative branches of government. State power can't be concentrated in the same entity. In Latin American countries, the independence of the three branches of government lies at the foundation of the state.

Legislative power resides in the National Congress normally composed of two chambers: deputies and senators. Their sessions normally last for 90 working days, period that can be extended to 120 days by the Congress or at the request of the executive branch. Generally any law sanctioned by the legislative branch can be objected by the President of the Republic within ten days.

In all Latin American countries, law proposals require justifying arguments unless they are proposals for the substitution, or emerging from the discussion, of a more general proposal. No project can be submitted by more than a fourth of the total number of senators present.

40. The case of Bolivia is particulary representative of all these deficiencies and problems.

Unfortunately, in most Latin American countries the work of parliamentary commissions is secondary and most of the parliamentary work continues to take place in plenary sessions. This makes legislative processes extremely discursive, slow, and with weak scientific or technical bases. In some countries of the region, commission work is irrelevant due to the obsolete rules that regulate their operation. Some parliamentary majorities prefer technically incompetent parliaments with commissions that have no legislative or controlling power because it is thus possible to control this branch of government through the arithmetic logic of democracy. These legislative norms impede the development of democracy.

Structural Inability to Achieve Institutional Coordination

On one hand, international cooperation does not respect national sovereignty and does not achieve harmony between multi and bilateral initiatives. On the other hand, we have local public institutions enjoying executive privileges, disregarding proper legislative and parliamentary processes. Furthermore, the separation between the political system and civil society grows as time passes, putting in evidence the obsolescence of parliamentary systems.

This picture shows drastic institutional limitations. It's necessary to increase interactions to free local potentials.

SOME SUGGESTIONS FOR IMPROVING THE LAW FORMULATION PROCESS

- **Strengthen and qualify the information base** that supports policy design and the preparation of laws. This is an essential requirement. It's important to coordinate entities of the executive branch to carry out studies and research on critical aspects of law design with a high technical content.

  This process will take some time and in some cases will require large investments, especially in all those cases where it's necessary to initiate the collection, organization and processing of primary information. However, it's also true that in other cases this task may require modest investments. Linkages can be established with inter-

national information systems which would allow access to the latest publications and the organization of document collections of specialized centers from all over the world. Clearly, adequate information bases could be acquired if some priority were assigned to this task.

- **Search for Consensus Between the Political System and the Civil Society.** This is a necessary condition to obtain support for the application of laws. The search for consensus implies a systematic involvement of beneficiaries and groups affected in a board process of consultation.

  In Latin America, progress can be observed in the consolidation of democratic regimes and in the wider application of local participation mechanisms; the state is approaching civil society and vice versa. Local power is becoming more representative and able to satisfy some of the basic needs. This is the only way to achieve public acceptance and consensus in the process of preparing and applying laws. In other countries of the region, however, the separation between the state and the civil society increases and the possibility of achieving consensus is remote.

- **Give Priority to the Preparation of Framework Legislation** to address sector needs in a context that would ensure overall coherence and induce complementary action. Complementing framework laws with specific legislation would lead to the effective and integral treatment of certain main themes that require such broad approaches.

  For example, framework laws such as the Law of Environment and Natural Resources should constitute the initiating point for the modification and modernization of specific laws such as the Forestry Law and the Lands and Water Laws. In some cases, due to certain political, economic or social circumstances, it will be necessary to advance simultaneously in the preparation of framework as well as specific laws.

- **Balance Economic Interests** of entrepreneurial groups, indigenous peoples and peasant communities in a context of equity, sustainability and economic growth. Although this is a difficult task, it's important to exhaust all means to achieve a certain equilibrium that will later facilitate the application of laws.

- **Overhaul International Cooperation,** making it more horizontal, democratic and considerate of local values and constraints.

  Although some changes are evident in some institutions and their staff, there are still many cases in which the opposite is true. Ironically, these latter cases are frequently fostered by government staff that tend to be exceedingly submissive. Thus, this process must be based on a continuing educational effort.

- **Punish Corruption**. It is impossible to produce modern legislation without correcting the circumstances that make corrupt practices possible.

  A transparent process would have citizens' support. For example, it would be necessary to obtain the devolution to the state of vast unproductive latifundia and forests that were obtained through corrupt practices. This should be done simultaneously with the application of modern forestry and land laws.

- **Straighten Democratic Institutions** that would allow parliamentary regimes to get in closer contact with the citizen.

  Assemblies, referendums, instances of popular control, vigilance committees, recognition of traditional authority, etc., are all means to achieve a more legitimate democratic process.

- **Foster Environmental Education** to promote environmental conservation and sustainable development.

  Increased awareness of the need to achieve sustainable development objectives can be obtained by modifying elementary school curricula, increasing awareness of the environmental potential of ancestral agricultural techniques (Andean sucacollos or waruwarus), increasing environmental education at university level, producing illustrative and educational posters, and so on.

- **Modernize Parliamentary Operations.** It's not feasible to strengthen democracy in Latin America without significantly modifying parliamentary regimes and giving significantly more power to parliamentary commissions.

These commissions should constitute mini parliaments with control and legislative capacity and their recommendations would be referred to the Plenary of the corresponding Chamber. It is also necessary to achieve better technical qualifications among members of the parliament once they become members of these commissions.

- **Establish National Parliamentary Advisory Offices** to increase the communication between the different branches of government, civil society and the international cooperation agencies. These offices should be supported with information systems and technical documentation and connected to entities that are able to provide the information needed for the adequate preparation of laws. These entities should be non-state public institutions, given the fact that in most countries of the region there is no capacity to secure individual advise to each member of parliament or to each parliamentary commission. Eventually, it will be necessary to create specialized parliamentary advising offices which would have a multi-party, multi-sector nature and operate with the support of contracted consultation and cooperation in specific subjects.

Four Basic Pilars of Forestry Legislation

Forestry legislation should be based on four pillars: a) stimulus to sustainable forestry production, b) environmental management, c) an efficient institutional framework, and d) democratic access to forest resources.

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INTERNATIONAL ISSUES

THE END OF THE HAMBURGER CONNECTION? LIVESTOCK AND DEFORESTATION IN CENTRAL AMERICA IN THE 1980S AND 1990s

*David Kaimowitz**

In the 1960s and 1970s, credit and land tenure policies, road construction, and growing foreign and domestic markets promoted large-scale cattle ranching in Central America, at the expense of forests and small farmers. Since then, conditions have been less favorable to cattle, but deforestation continues. This paper examines this apparent contradiction. It concludes that the situation is more complex and diverse than in the past.

In Costa Rica and Panama, pasture expansion and deforestation have diminished greatly, and in Costa Rica there is even movement in the opposite direction. In contrast, in Guatemala and Honduras, where land tenure policies and new roads promote the expansion of large ranches, forests continue to be converted to pasture, particularly in the Peten. Nicaragua has large areas of abandoned pastures and only about half the cattle it had in 1978. Nevertheless, land and credit market imperfections, the degradation of existing pastures, and the return of displaced farmers and demobilized soldiers maintain pressure on the agricultural frontier.

Overall, policies and markets less favorable to livestock have slowed the conversion of forests to pasture, but not stopped it. To do that would require alternative sources of income for farmers in the agricultural frontier, land taxes, active land-use planning, and closer monitoring of the environmental impact of road construction. Pasture degradation and the promotion and utilization of secondary forests on former pasture land deserve greater attention.

***Note:** The author is grateful to Robin Bourgeois, Ronnie de Camino, Mark Edelman, Alicia Grimes, and Gustavo Sain for their comments.

INTRODUCTION

This paper analyzes what happened to the connection between deforestation and pasture expansion in Central America and Panama in the last fifteen years. A great deal has been written about how rising demand for Central American beef exports, combined with credit, land tenure, and infrastructure policies favorable to large ranchers, promoted massive conversion of forest to pastures in the 1960s and 1970s (Howard, 1987, Parsons, 1976, Williams, 1986). Between 1950 and the late 1970s, 11.2 million hectares in Central America were converted from forest to pastures (Toledo, 1992). During this period pasture expansion was the main cause of deforestation. This phenomenon has been referred to in a well known article by Myers (1981) as the "hamburger connection," since supposedly the underlying cause of the problem was the growth in consumer demand for low quality beef by fast food chains in the United States.

Since 1979, the situation has changed (Edelman, 1994, Lehman, 1992). Demand for beef exports has declined, and falling per capita incomes have limited domestic beef and milk consumption (Seré and Jarvis, 1992). Real international beef prices fell between 1979 and 1986, and then stagnated (Correa, 1993). Per capita red meat consumption by North American consumers has declined as a result of stagnant incomes and the trend towards healthier diets. Rapid technological change in the poultry industry has led Central American consumers to substitute chicken for red meat and powdered milk donations from food aid programs have lowered domestic milk prices. Credit for livestock has diminished and real interest rates have risen. More than four million hectares have been incorporated into protected areas, limiting (to some extent) their availability for pasture expansion (Merlet et al, 1992). Violence, the threat of land expropriation, and unfavorable price policies and exchange rates led private cattle ranchers in Nicaragua to reduce their herds in the 1980s (Holmann, 1993). Violence has also limited cattle expansion in parts of northern Guatemala.

As a result, cattle expansion in Central America has slowed or even been reversed. Central America's cattle herd was slightly smaller in 1992 than in 1979 (FAO 1993, 1980). The area in pasture expanded, but at a much slower pace than in previous decades, increasing only one million hectares between 1980 and 1988 (Baumeister, 1991).

Table 11. Cattle Population in Central America and Panama in 1970, 1978, and 1991 (million head).

	1970	1978	1991
Costa Rica	1.5	2.0	1.9
El Salvador	1.2	1.3	1.2
Guatemala	1.5	2.1	2.1
Honduras	1.0	1.2	2.2
Nicaragua	2.2	2.8	1.5
Panama	1.2	1.4	1.4
Total	8.6	10.8	10.3

Sources: Costa Rica: Barquero, 1993, FAO, 1980; El Salvador: FAO, 1993, 1980; Guatemala: Banco de Guatemala, 1981, RUTA, 1993; Honduras: SRN, 1991; Nicaragua: Holmann, 1993; Panama: Dirección de Estadística y Censo, 1992.

Nevertheless, conventional wisdom has it that deforestation in the region continues at historical levels (300 000 to 400 000 hectares per year), or is increasing (Merlet *et al.* 1992)[41] . (See table 12.) How is this possible? Have other causes of deforestation become more important? Is the problem poor data on pasture area or the rate of deforestation? Are other factors promoting livestock expansion which previously received little attention? Given the diversity of situations in Central America, what can we learn about the different factors promoting deforestation, and what are the implications for policy?

Table 12. Forest Area for Selected Years in Central America (excluding El Salvador) and Panama, (millions of hectares).

	1950/60s	1970/80s	1990
Costa Rica	2.7 (1950)	1.6 (1977)	1.4
Guatemala	7.1 (1950)	4.4 (1980)	3.7
Honduras	6.8 (1964)	5.1 (1986)	4.7
Nicaragua	6.4 (1960)	4.5 (1980)	4.1
Panama	5.2 (1950)	3.9 (1974)	3.2
Total			17.1

Sources: For 1990 for all countries: Utting, 1993. For previous years: Costa Rica: Rodriguez and Vargas (1988), Guatemala: 1950 (OAS, 1991), 1980 (CONAMA,1992), Honduras: Daugherty, 1989; Nicaragua: FAO; Panama: Ledec, 1992.

41. The term deforestation, as used in this paper, refers to the complete removal coverage, and does not include other types of forest degradation (Ledec, 1992). Typically, in Central America lumber companies degrade the forests, but don't completely remove the forest coverage. Hence, they normally do not "deforest," although their actions may provoke deforestation either by opening up roads or reduding the forest's value. The same applies to the common practice of cattle grazing in pine forests.

This paper puts forth some initial hypothesis with respect to these questions. It is organized into five country studies, followed by a synthesis and conclusions. In each case the paper first presents the available evidence regarding deforestation rates and changes in cattle population and pasture area, both in traditional cattle producing regions and along the agricultural frontier. These, if you will, are the dependent variables which must be explained. It then looks at changes in policies and market conditions which might explain the expansion or stagnation of the livestock sector.

El Salvador was the only Central American country excluded from the analysis, since it has little remaining natural forest, and shifts in pasture area have no strong relation to the deforestation process in that country.

Costa Rica

Estimates of annual deforestation in the late 1970s and early 1980s range from 30 000 to 60 000 hectares (Utting, 1992). This later fell to 18 000 hectares between 1987 and 1992, and recently to only 8500 hectares (Núñez, 1993, World Bank, 1993).

Historically, conversion of forests to pastures was responsible for more than 60 percent of deforestation (Nations, 1992, World Bank, 1993). Nevertheless, between 1978 and 1989 the cattle herd stagnated at between 2 000 000 and 2 200 000 head, and since then has declined (Barquero, 1993, Edelman, 1994). Pasture expansion also slowed, although there was no absolute decline in pastures — at least until 1988. (Segura, 1992, Van der Kamp, 1990).

Nevertheless, lower deforestation rates are largely a result of rapid growth in protected areas since the mid-1970s and the fact that little forest remains outside these areas, not the stagnation of the livestock sector (Núñez, 1993, Utting, 1992). At the same time, the area in secondary forests has grown from 230 000 hectares in 1984 to 425 000 at present, largely as a result of pasture abandonment (Núñez, 1993, Tropical Science Center, 1991).[42]

42. Official Costa Rican government estimates of the growth in secondary forest are lower, but still reflect a clear upward trend.

Within this general pattern, there are important regional differences. Although it slowed in recent years, conversion of forest to pasture continued well into the 1980s in the agricultural frontier regions of the Huetar North and Huetar Atlantic (Girot, 1989, Hijfte, 1989, Van der Kamp, 1990). The largest stimulus to cattle expansion in these regions in the 1980s was new road construction, much of which was financed by the USAID Northern Zone Project (Girot, 1989). New roads facilitated access to forest areas and stimulated higher land prices, thus promoting land-clearing for speculative purposes (Holmann *et al.* 1992, Jones, 1990).

In contrast, in much of Costa Rica's traditional cattle areas of Guanacaste and Puntarenas, pasture lands and stocking density have been declining for some time (Rodríguez, 1993). This may reflect, at least in part, pasture degradation, caused by erosion, overgrazing, and soil compaction (Place, 1981, Rodriguez, 1993, Thrupp, 1980).

Unfavorable market and policy conditions have also been major factors in the stagnation of cattle production in traditional livestock regions. According to Edelman (1994:8), "Sluggish export demand, higher taxes and indebtedness, and soaring interest rates and veterinary input costs have made cattle ranching a losing proposition for most investors." Beef and milk prices fell during the last fifteen years, although increasing domestic beef and milk consumption and new markets for beef and milk exports (Mexico, Central America and the Caribbean) kept the sector from declining even further (Barquero, 1994, Camacho, 1989, Edelman, 1994, Van der Kamp, 1990). Rising real wages have also lowered the profitability of ranching (Holmann *et al.* 1992). Credit available for cattle decreased between 1980 and 1989, and real interest rates rose (Aguilar and Solís, 1988, Holmann *et al.* 1992).[43]

The recent decline in pasture expansion in Costa Rica can largely be explained by the lack of available areas into which to expand, and the declining profitability of ranching. But what about the growth of secondary forests? Although several studies show that secondary forest management could be profitable, there is still little commercial exploitation of these forests (COSEFORMA, 1993, Guillén, 1993, Herrera,

43. On the other hand, the Agricultural Development Program (FODEA) in the mid-1980s offered substantial debt relief to ranchers, most of which went to a few large ranchers (Banco Mundial 1993).

1990). Thus, probably no ranchers chose to abandon their pastures because secondary forests are a more profitable alternative. It may be that in certain instances pastures have been abandoned because the variable costs of keeping cattle on these lands are higher than the earnings. Considering that traditionally one reason for keeping land in pasture rather than abandoning it was to avoid squatters or expropriation, and the fact that these concerns must have diminished in recent years, this may also explain part of the increase in pasture abandonment (Place, 1981, World Bank, 1993).

When pastures are abandoned, ranchers often decide not to sell the land because it forms part of a larger farm or because they expect higher land prices in the future. Ranchers see land as a good investment because real land prices in northern Costa Rica have risen steadily for years (Aguilar and Solís, 1988, Edelman, 1985).

Panama

Estimates of annual deforestation in the early 1980s were between 36 000 and 50 000 hectares (Utting, 1992). Historically, between 70% and 90% of deforested lands have ended up in pasture (Heckadon, 1984, Ledec, 1992).

Panama's cattle herd reached its maximum size in 1983 and has slightly declined since (Dirección de Estadísticas y Censos, 1992). Nevertheless, pasture lands expanded some 170 000 hectares between 1981 and 1991.

Panama exhibits the same pattern of regional differences in livestock performance as Costa Rica. Whereas cattle population has fallen or stagnated in traditional cattle raising provinces such as Chiriqui, Cocle, Herrera, Los Santos, and Veraguas, which have undergone substantial environmental degradation, it has grown in provinces with agricultural frontier areas, such as Bocas del Toro, Colon, Darien, and Panama. In the latter provinces, the cattle population rose from 250 000 in 1981 to 315 000 in 1991 (Dirección de Estadísticas y Censos, 1992). Even so, this only implies pasture expansion on the agricultural frontier of between 6000 and 10 000 hectares per year over the last ten years.

During most of the 1980s, policies and market conditions were largely unfavorable to livestock production. Beef exports, while increasing in the last few years, have never been important to Panama (IICA, 1993,

Ledec, 1992). Per capita beef consumption fell sharply between 1985 and 1992. Price controls kept meat prices low until being lifted in 1991 (IICA, 1993). Producer milk prices did not increase between 1983 and 1992, while costs increased substantially (Sarmiento, 1990). Public livestock credit has fallen sharply in recent years, although private loans compensated for some of this decline after 1990 (IICA, 1993). There is some indication that government policies have become more favorable to cattle in the last few years (elimination of export restrictions and price controls, establishment of preferential interest rates, tenure policies favorable to large land-owners).

Credit has had only a limited role in cattle expansion on the agricultural frontier, but road construction such as the highway built between Chiriqui and Bocas del Toro in the mid 1980s has been quite important (Heckadon, 1984, Jones, 1990, Ledec, 1992, Utting, 1992). Credit was historically more closely associated with deforestation in the traditional livestock regions (Ledec, 1992). Undoubtedly, pasture expansion on the agricultural frontier would have been much greater had it not been for restrictions on the cattle population in Darien related to hoof and mouth disease control.

Guatemala

Estimates of deforestation in the 1980s range from 40 000 to 90 000 hectares per year (Colchester and Lohman, 1993, CONAMA, 1992). In the Peten alone, 30 000 hectares were deforested yearly between 1976 and 1987 (Agrar-Und Hydrotechnich GMBH, 1992).

In recent years, land clearing for pastures and crops has accounted for some 90 percent of deforestation (Colchester and Lohman, 1993). This is not reflected in national livestock statistics, which show an erratic growth of only 10 percent in the cattle herd between 1978 and 1991 (RUTA, 1993). But it is better understood looking at data from the Peten, where the cattle herd rose from 75 000 in 1979 to between. 250 000 and 300 000 in the early 1990s (Agrar-Und Hydrotechnich GMBH, 1992, Schwartz, 1990). About half the deforested lands in Peten are now in pastures. Cattle expansion in the Peten has to a certain extent compensated for a decline in livestock in traditional cattle regions on the Pacific Coast.

Pasture expansion in the Peten is in part a result of land speculation and in part due to the region's humid climate, which allows large

ranchers to raise calves there that can later be fattened in the drier south coast. During the 1970s and 1980s, government policy was to "sell" large tracts of Peten lands for ranching at low prices (Banco de Guatemala, 1981, Schwartz, 1990). Many investors earned large amounts of money thanks to rising land prices, fostered by public infrastructure investments (Colchester and Lohman, 1993). It is not clear whether official policy still favors colonization for cattle, but large ranchers keep expanding their farms, and continue to deforest to show that government land grant conditions are being met and to avoid land invasions. The profitability of beef ranching itself in the Peten varies greatly, depending on the specific ecological conditions and the rancher's management skills (Agrar-Und Hydrotechnich GMBH, 1992, Banco de Guatemala, 1981, Schwartz, 1990).

There is less information about livestock in the Verapaces and Izabal, which also have large forested areas. Much has been written about road building and small farmer colonization projects and the expansion of large ranches in this region in the 1970s, but little about what came later (Jones, 1990, Melville and Melville, 1982). There are now only 160 000 hectares of unclaimed national lands in northern Guatemala (excluding the Peten), but large forests remain on private lands (CEAR, 1993, Dávila and Castro, 1990, Meléndez, 1990, Sandoval, 1992). In some areas in the north, lands were abandoned due to violence, and secondary forest grew back. Relatively large national parks have been created in Alta Verapaz and Izabal, but face problems with encroachment (Colchester and Lohman, 1993).

Livestock policies and markets in recent years have been moderately unfavorable. Beef exports declined between 1980 and 1988, and then slowly began to rise (Armas and Toro, 1991). Intermittent exports to Mexico partially compensated for the loss of U.S. markets, particularly in the Peten. Domestic beef consumption has been stagnant and real producer milk prices fell 12 percent between 1979 and 1992 (OAS, 1991,RUTA, 1993).

Public livestock credit in Guatemala was never as important as in other Central American countries, but in the 1970s and early 1980s it contributed to pasture expansion in the north. Since then, public credit for beef ranchers has declined, and real interest rates have risen (RUTA, 1993).

The most important factors promoting continued pasture expansion have been land tenure and road construction policies, which have facilitated large ranchers' occupation of new lands. Once occupied, these forest lands are converted to pasture largely as a mechanism for establishing clear possession. The lack of favorable policies supporting natural forest management have also been important in this regard.

Honduras

Unlike other Central American countries, pine forests account for over half the forest area in Honduras. Deforestation is (currently?) estimated at 95 000 hectares per year, two thirds of which is in broad leaf forests (Walker *et al.* 1993). Most broad leaf forest is in Atlántida, Colon, Gracias a Dios, and Olancho. Broad leaf deforestation is almost exclusively a result of land clearing. Lumber companies, forest fires, and fuel wood exploitation are responsible for most pine forest deforestation, although there is some land clearing for agriculture in the south and the west.

After slow growth in the early 1980s, cattle ranching appears to have expanded rapidly in the last ten years, reportedly growing from 1.4 million head in 1985 to 2.2 million in 1991. The area in pastures went from 930 000 hectares in 1973/4 to 1.542 million in 1988/9 (SRN, 1991).

Based on the available information it is difficult to explain both the stagnation of livestock in the first half of the 1980s and the apparent rapid expansion which followed. Cattle ranching was less profitable in the early 1980s than in the 1970s, but it is not clear whether this trend was later reversed (Howard, 1987). Compared to the 1970s, the quantity of beef exported remained low and relatively stagnant throughout the 1980s (SRN, 1991). Total beef and milk consumption rose little in the 1980s and per capita consumption declined (Correa, 1993). Livestock received more credit in real terms in the first half of the 1980s than in the second (SRN, 1991, Stonich, 1989).

Two possible explanations for these apparent contradictions are:

1. There really was little or no cattle expansion after the mid-1980s and the Honduran government statistics are incorrect. Some support for this hypothesis comes from the fact that FAO statistics do not register the same increase in cattle herd and pasture in this period, as do

Honduran government statistics (Correa, 1993, SRN, 1991). However, FAO statistics are notoriously unreliable.

2. Cattle expansion has come largely from ranchers on the agricultural frontier in Olancho, Colon and Atlántida who are less responsive to changes in prices and credit than ranchers in traditional cattle regions. Honduras was the country with the most intense process of spontaneous colonization in the 1980s and, unlike Guatemala, small and medium ranchers, who may be less responsive to price variations, hold a major part of the cattle (Campanella *et al.* 1982, Utting, 1992). There is also substantial anecdotal evidence that large ranchers have continued to convert forest areas to pasture in agricultural frontier areas in recent years (Walker *et al.* 1993). It is not clear, however, what might have made the agricultural frontier expand much more rapidly in the late 1980s and 1990s than in the first part of the decade.

Nicaragua

Most forest in Nicaragua is located on the Atlantic Coast, and in Jinotega, Matagalpa and Rio San Juan (ITECFOR, 1993). There is little data on deforestation since 1979. Experts agree, however, that deforestation declined sharply in the 1980s, and increased after 1990 (Maldidier, 1993). The figure of 150 000 hectares deforested in 1992 has circulated widely, although its source is unclear (Ortega, 1993).

Military conflict was a major factor in the decline in deforestation in the 1980s. Large areas along the agricultural frontier were evacuated and thousands of families resettled. In 1988, the government estimated that 300 000 hectares of farm land had been abandoned because of the war (Gutiérrez, 1988).

Agrarian reform also helped lower deforestation, as tens of thousands of landless families received access to land on existing farms and no longer had to migrate to the agricultural frontier (Karliner, 1985). The threat of possible expropriation limited large ranchers' interest in expanding into new lands.

Pressure to deforest for pasture expansion was reduced by a dramatic decline in the cattle herd, from 2.8 million in 1977 to 1.5 million in 1991 (Holmann, 1993). Between 1977 and 1980, the national herd declined 25 percent due to war, indiscriminate slaughter, and illegal

exports to Honduras and Costa Rica (Cajina, 1986). After that, government price controls on meat and milk, overvalued exchange rates, the threat of expropriation for land reform, competition with donated imported milk, shortages of production inputs, and, after 1985, the loss of access to the U.S. market for beef exports due to a commercial embargo sharply depressed private investment in livestock (Biondi-Morra, 1990, Cajina, 1986, Hirvela *et al.* 1989). The government tried to compensate for the decline in individual private cattle investment with higher production on state farms and production cooperatives, supported with highly subsidized credit, but had only partial success (Biondi-Morra, 1990).

Structural adjustment policies initiated in the late 1980s may have increased real producer prices for beef and milk through less government control of domestic markets and higher real exchange rates, but at the same time they dramatically reduced the availability and subsidy of livestock credit, depressed domestic milk and meat consumption, and promoted indiscriminate cattle slaughter on state farms that were privatized (Carana Corporation, 1993, Holmann, 1993, Jarquin and Videa, 1990). The net result was a further decline in cattle population.

At present, livestock production is marginally profitable, and probably more profitable than most alternative uses of capital, and once again Nicaragua has access to U.S. markets (Holmann, 1993). Nevertheless, lack of liquidity and access to credit and sporadic violence have kept investment low, except for the largest ranchers.

The decline in cattle population (and labor shortages during the war years) have been associated with both pasture degradation and pasture abandonment. Limited management has led to poor pastures and weed invasions, reducing carrying capacity over large areas by up to one third (Hirvela *et al.* 1989, Holmann, 1993). There has also been a long-term loss in carrying capacity due to erosion and loss of soil nutrients. There are now an estimated 1.1 million hectares of "woodlands" and 900 000 hectares of "forest fallow," much of which is abandoned pastures and crop lands in the process of becoming secondary forests (ITECFOR, 1993).

Despite this large-scale decline in the utilization of existing farm land, since 1990 forest areas in traditional agricultural frontier areas in eastern Nicaragua have once again come under heavy pressure (CIPRES, 1992, Maldidier, 1993, Ortega, 1993). Demobilized soldiers and displaced farmers have returned to previously abandoned frontier

areas, often as a result of government resettlement policies. To date, they have deforested mostly for crop production, but most have medium term plans for establishing pasture. Large cattle ranchers have also begun to purchase agricultural frontier lands, which they prefer to purchasing or rehabilitating abandoned pastures because land prices are lower on the agricultural frontier, it is often more expensive to recuperate degenerated pastures than to establish new ones, and there are fewer problems of land tenure insecurity and conflicting land ownership claims. New road construction, such as the road currently being built from Rama to Bluefields, has also promoted frontier expansion.

Synthesis and Conclusions

Lower prices, higher costs, and limited access to credit, as well as military conflicts and land expropriations, had the expected result of reducing cattle supply in the 1980s and 1990s. Nevertheless, the impact on pasture area was smaller than on cattle population and whereas cattle declined in most traditional livestock producing regions it grew in most agricultural frontier areas. Thus it would appear that the elasticity of supply of livestock products on the agricultural frontier with respect to price and credit availability is much lower than in traditional livestock grazing areas. This implies that eliminating credit subsidies and price distortions is not going to be sufficient to stop deforestation caused by pasture expansion. "Getting your prices right" is simply not enough.

Instead of the traditional, demand-driven story of the "hamburger connection" of the 1960s and 1970s, current pasture expansion by large ranchers on the agricultural frontier seems to be better explained by the desire to obtain access to new lands and protect those lands from encroachment and expropriation than by the profitability of livestock itself or credit subsidies (although both of these may be important). This process has been promoted by road construction, which has continued in recent years, and by macro-economic and land tenure policies which favor rising real land prices, and the purchase of land as a hedge against inflation and taxation. Although there is only scattered evidence to date, to the extent that they increase the value of claiming new lands, land titling programs may also promote this type of land speculation. To control this type of pasture expansion will require carefully designed land tenure policies (including land taxation and strictly enforced protected areas) and a more cautious approach to road construction. Incentives for forest management and conservation could also be helpful.

For small- and medium-sized producers on the agricultural frontier, pasture expansion appears to be practically a necessity, given their lack of alternative options. These families have come to frontier areas in search of land to farm, and they have tended to turn to cattle as a means of: 1) occupying large areas of land with little labor, 2) producing something which is easily transportable, 3) reducing the risks of crop failure or market fluctuations, 4) having a convenient means of savings, and 5) utilizing lands which have become too degraded for continued crop production (Hecht, 1992, Merlet *et al.* 1992). Even if cattle ranching provides low profit margins when all the resources involved are valued at "market" prices, these farmers have few real viable choices other than to raise livestock.

There are no easy solutions to small farmer colonization of the agricultural frontier. There has been much discussion of finding sustainable and profitable alternatives which allow small farmers to exploit existing broad leaf forests; developing farming practices which permit continued agricultural production on existing farm lands, thus reducing the incentive to advance farther on the agricultural frontier; changing land tenure policies to limit land speculation and new arrivals; and promoting alternative employment sources that reduce the pressure to migrate to frontier areas. So far, however, there has been more discussion than results.

Outside of Costa Rica and Peten, Guatemala, there is little reliable information regarding deforestation rates over the last 15 years. However, given the decline in pasture expansion and the lack of any major new contributors to deforestation, it seems probable that deforestation declined in the 1980s; although in Honduras and Nicaragua it seems to have picked up again recently. (The total area in crops increased only 500 000 hectares between the 1970s and 1990 and, as noted earlier, logging activities in Central America, while degrading the forests, do not usually "deforest" in this sense used in this paper (Correa, 1993)). This is not to imply that current deforestation rates are acceptable. If current trends continue, Central America will have little remaining forest in a few decades.

One major explanation for why deforestation continues to be high while the area in pastures and crops has expanded relatively slowly, is the growth in abandoned pastures and, to a lesser extent, abandoned crop lands. Pastures have been abandoned due to a combination of declining profitability of cattle ranching, environmental degradation, conflicts over land ownership, lack of access to credit, and violence. Many

of these areas are being converted to secondary forests by default, but little is known about this process, and there are even fewer policies designed to actively manage it (and perhaps promote it).

Environmental degradation has been a significant factor in declining stocking densities in traditional cattle regions and in pasture abandonment in general. In many areas, current livestock practices appear unsustainable. This issue has been studied in great depth in the Amazon Basin, but very little in Central America. It requires greater attention and policy responses.

Finally, just as unfavorable market and policy conditions reduced livestock expansion over the last fifteen years, a change in these conditions could well foster it once again. A return of economic growth in the region, expanding exports to Mexico, renewed credit subsidies, or livestock promotion policies could all have this effect, and should be monitored. No livestock promotion policies should be implemented without taking into account the multiple environmental and social costs that might result from poorly designed policies (loss of wood resources and biodiversity, increased soil degradation, sedimentation of dams and rivers, and land concentration).

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PRIVATE PROPERTY IN FORESTRY CONCESSIONS

Fernando Razetto

EXECUTIVE SUMMARY

Bolivia, Colombia, Ecuador, Peru and Venezuela conform the Andean subregion. These countries have a combined surface exceeding 25 percent of South America or 472 million hectares. More than half, or 250 million hectares are covered by forests (See Annex 1, Andean Forest Survey) .

Forest industry contributes only 1.5 percent of GDP. This extremely modest contribution is dramatic, given the poverty affecting almost 80 percent of the population and the crushing external debt reaching more than 85 billion dollars (Junta del Acuerdo de Cartagena. Estadística, 1992).

At the same time, and as a consequence of poverty, more than a million hectares of forests are cut and burned every year —equivalent to more than 150 million cubic meters of wood— mainly to clear lands for subsistence agriculture.

It's evident that present forest policies and the forest concession system have not stopped deforestation nor contributed to raising the quality of life of the impoverished rural populations. Therefore, policy reforms influencing management and conservation of forest resources are needed.

According to legal standards prevailing in Andean countries, the government has the responsibility of promoting sustainable uses of natural resources and ensuring environmental protection. The concept of sustainability implies a balanced consideration of social, economic and ecological aspects. However, national policies have given more importance to social and ecological aspects, an approach that has created distortions and prevented favorable economic results.

A survey of producers' associations in the five countries of the Andean subregion revealed that almost three fourths of industrial or commercial wood supplies are produced by small producers using the

traditional selective harvesting method. This harvesting method is not profitable and reduces the possibility of small producers to pay for the forest management needed to maintain the forest's productive capacity (See Table 2a in Annex 2).

Also, public forest administrations have sought to introduce order in forest harvesting by making use of long-term forest concessions and requiring the preparation and implementation of management plans as a condition for the commercial use of forest resources.

Under this system, silvicultural and other forest management operations are reduced to covering harvesting costs and no rights on future use are granted. Profitability is generally low, which discourages the investments needed for the sustainable management of forests (See Table 2b in Annex 2).

In view of these scenarios that do not ensure the sustainability of forest operations, this document proposes to that private property rights be granted to forest concessionaires in all those areas where they have complied with sound forest management practices. This would generate incentives to forest investments aimed at maintaining the productive capacity of forests.

At the end of a cutting cycle (an average of 30 years), it would be possible to have highly productive private forests with higher profitability rates than any other legal agricultural activity (See Table 2c in Annex 2).

Expected results are:

- Increased wood production and reduced pressure on natural forests.
- The transformation of forest management into a highly profitable economic activity, discouraging conversion of forest lands to agricultural uses.
- Employment and wealth generation, increase in the quality of life of rural populations and increased public revenue, which could be used to protect ecosystems and biodiversity.

BACKGROUND

Andean Forestry Legislation

A review of legislation in the five Andean countries shows similar criteria: in all cases forest resources are considered as national patrimony, they are assigned a social function and are administered by an entity linked to a ministry that is also in charge of agriculture and the peasant economy.

Even when forestry activities are recognized as parts of the agrarian sector, there is a marked bias against forestry in the agrarian legislation and policies: the public administration gives priority to agriculture and favors the expansion of the agricultural frontier by granting land ownership, even if in many cases these are forest lands.

With regard to forestry activities, laws allow for forest harvesting but establish strict conditions aimed at maintaining the forests' productive capacity and require certain forms of forest management or payments to cover its costs. However, no rewards for appropriate forest management nor land ownership are granted to forest entrepreneurs.

The Public Forestry Administration and Concessions Models

Generally, public forest administrations are insufficiently funded and their low level in the government hierarchy doesn't allow them to have influence in the design of national policies.

Although the law generally prescribes that forest lands should not be used for agricultural purposes, the public forestry administrations of the subregion cannot effectively control the conversion to other uses of more than a million hectares of forests per year.

Out of the 126 million hectares of forests that have a capacity to produce permanently, it is possible to obtain legal authorization for forest harvesting operations in about 80 million hectares (See Annex 1, Andean Forestry Survey). There is great discrepancy between these 80 million hectares and the 8 million cubic meters of wood that are extracted per year for industrial purposes. This explains the high raw

material costs, the weaknesses of control mechanisms and the low levels of profitability of forest harvesting.

Giving priority to social aspects, the government allows thousands of small extractors to harvest wood in lots smaller than 1000 hectares. This traditional harvesting model supplies more than 70 percent of the industry's raw materials. The model is characterized by the selective extraction of a few species with high commercial value and strong demand, but it's inefficient and is commonly associated with low profitability levels (See Table 2a in Annex 2). Payments by the small entrepreneurs do not cover forest management costs and are hardly sufficient to finance a small part of the public forestry administration's expenses.

Following other models promoted by the legislation, some private entities are committed to managing long-term concessions, applying management plans to natural forests or to plantations established for wood pulp supply. However, due to lack of experience many of these management plans turn into adaptive research. The volume of these concessions represents only 5 percent of industrial wood production.

It is unlikely that the result of these concession models and management plans will be verifiable during the next decade or so. However, available information indicates that it would be possible to attain modest levels of profitability after covering management costs and the highest tax rates in the subregion (See Table 2b in Annex 2).

One of the problems mentioned by the forest entrepreneurs that discourages them from acquiring long term commitments related to forest concessions is the unstable nature of forest administrations. This is often caused by the frequent staff changes motivated by political considerations or by changes of the parties in power. These changes introduce uncertainty in the conditions and terms of concessions and jeopardize industrial supplies. The alternative model proposed by the entrepreneurs is one that would have clear and stable rules over the long term and recognize investments in forest management and silvicultural practices carried out by the concessionaire.

Andean Forest Identity

Much too often in international circles it is said that forest industry contributes to the reduction of the forest cover. This may be true in the northern hemisphere where natural forests are homogeneous and harvesting normally takes place by clear-cutting. The situation is different

in the case of the Amazon forests of the Andean subregion where diversity is the main feature. In a typical forest of the subregion, a single hectare may contain more than 200 trees of appropriate dimension. However, the annual volume obtained by selective cutting reaches the equivalent of only two or three trees per hectare.

Also, there are marked differences between tropical forests themselves. In Central America, 60 percent of the population lives in forest areas, forcing government to formulate policies to mitigate human pressure on forests. In the Andean subregion, however, only about 10 percent of the population live in forest areas.

The sharp differences between tropical and temperate forests make it necessary to formulate separate policies for each region. This is particularly advisable in the case of policies related to biodiversity conservation and ecosystem protection. In the case of the Andean subregion, it's advisable to promote the orderly occupation of tropical forest areas. This could be done by fostering the stabilization of rural populations through the widespread application of agroforestry practices closely linked to industrial activities.

JUSTIFICATION

Forest Cover Reduction

In industrialized countries, the reduction of the forest cover is mainly a result of industrial processing that contributes important resources to economic and social development. In the Andean subregion however, the cutting of more than a million hectares of forests per year is the consequence of slash and burn practices for agricultural production. These practices will necessarily be unsustainable and contribute little to the national economy. Alternatively, land thus cleared may be used for growing illegal crops.

Annually, Andean subregion forest resources produce 190 million cubic meters of wood products (See Annex 1, Andean Forest Survey), of which:

- 8 million cubic meters are for industrial purposes.
- 32 million are consumed as firewood or charcoal.
- 150 million are burned to convert forests into agricultural crops.

Therefore, forest industry is not the main cause of deforestation in the Andean Subregion.

Wealth Creation Potentiai

The forest area of the Andean subregion is close to the 264 million hectares found in Canada, more than the 226 million hectares of the United States and almost double the 137 million hectares found in the aggregate of all European countries (FAO Statistics, 1992).

The Andean Subregion, however, produces forest products for a total value of only $ 2,650 million per year, a figure that is substantially lower than the $33 000 million produced in Canada, the $90 000 million in the United States, and $76 000 million in Europe (FAO Statistics, 1992).

The low subregional forest yields, which only reach five cubic meters per hectare, do not reflect the potential of its natural forests. Rather, they're the result of mistaken concession policies and the lack of incentives to forestry activities.

The proposed model, (Table 2c) yielding 70 cubic meters on a 30-year rotation, would require only one third of the productive forests to reach production levels similar to those of Canada.

PRIVATE PROPERTY IN FOREST CONCESSIONS

Sustainable Development

The adequate utilization of natural resources offers an outstanding opportunity for Andean subregional development. Forest resources have a singular geographical importance as they cover more than half of the continental area of the subregion. In terms of volume, wood is the main commercial forest product.

Forest potential to generate wealth for the 80 percent of the poor Andean population must be measured taking into account the diversity of services produced by forest ecosystems that are important for sustaining life on earth. These dimensions are included in most definitions of sustainable development and have been incorporated into the present proposal. The proposal also includes the promotion of private property, equal rights, and the limitation of the role of the state, all of which are basic principles the liberal political doctrine.

The Proposal

Comparing present utilization methods, presented as Scenarios A and B in Annex 2, with the possibilities of forest concessions which grant private property rights, presented as Scenario C, we conclude that sustainable forest development should foster wood-based industrial development and investments in forest management as well as private forest ownership.

Caution is advisable in promoting investments in ecosystem conservation and in economic as well as social development.

It's recommended that the proposed model be applied for at least ten years in order to be able to obtain measurable results:

1. Through territorial environmental planning, identify natural forests and classify them according to their potential:

   - Forest production for industrial uses.
   - Agricultural production and pastures.
   - Ecosystems and biodiversity protection.

2. Assess the capacity of industrial forests to sustain wood extraction without sacrificing their ability to regenerate naturally and establish recommendable industrial harvesting volumes; recommend silvicultural practices to conserve or enhance their productive capacity.

3. Make available to forest producers forest areas that have productive potential to ensure adequate industrial supplies for the next ten years and concentrate harvests for commercial or industrial uses on those forests.

4. Organize the private administration of productive forests, including participation of producers, the public forest authority and conservation organizations.

5. Harvesting permits should be conditional to the approval and implementation of a management plan. Use modalities could be:

   - Annual auction of forest resources available in a harvesting area, preferentially to small entrepreneurs. Management plans are designed and implemented by the forest administration financed with payments made by the entrepreneurs.

   - Long term concessions to supply industrial enterprises or small entrepreneurs' associations. The concessionaire assumes costs and risks of forest management.

6. Grant forest ownership to those concessionaires who have successfully implemented forest management plans for sustainable production as an incentive to incur the substantial investments that are needed for efficient forest production and to help during the long period of forest investments.

7. In protected forests, commercial or industrial extractive activities would not be permitted. In forests with other potential agricultural uses agroforestry practices would be promoted.

IMPACT OF THE PROPOSAL

Social Aspects

- Small entrepreneurs would have access to annual auctions in appropriately planned harvesting areas. The scale of operations would allow them to reduce their harvesting costs, obtain better conditions to negotiate prices, and have access to social services and training.

- Forest-based industrial development would generate employment opportunities in urban industrial centers as well as in rural areas.

- Concentrated use would lead to stabilization of those rural populations associated with forestry activities that traditionally migrate.

- Development poles would be created thus increasing the standard of living of rural populations.

Ecological Aspects

- By concentrating forest harvesting, pressure on natural forests would be reduced, particularly on protected forests or those designated as representative of high biodiversity.

- Private administration, with participation by the public forest administration and conservation organizations, would lead to efficient control and compliance of contractual obligations, especially those related to forest management.

- The higher income perceived by the public forest administration could be used to increase the forest administrations' budgets and to efficiently fulfill their monitoring and control functions; forest lands would be used according to their potential.

- Higher forest returns could discourage inappropriate agricultural practices.

Economic Aspects

- The proposed industrial development activity would lead to an important increase in the participation of forest activities in the GDP and in the generation of industrial and rural employment and the level of exports.

- It would also lead to the development of connected activities such as housing, and internal and external savings for financing long-term forestry operations.

ANNEX 1. Andean Forestry Survey.

Andean Subregion	1000 ha
Total area	471 804
Forest cover	249 731
Productive forests	126 320
Authorized area for harvesting	81 000

Forest Use	1 000 cubic meters roundwood
Industrial	7 874
Firewood and charcoal	32 158
Deforestation for agriculture	150 000

Industrial Raw Material	Yields Cubic meters/ha	Price $/cubic meter	Payments to Government $/cubic meter
Valuable species	3	130	5.82
Commercial species	12	46	3.06
Potential species	15	33	2.12

Contribution to the Andean Subregion's Economy	$ 1 000
Forest contribution to the Andean economy	2 652 000
Subregional gross domestic product	168 600 000
External debt	85 145 000

Sources: These figures, elaborated by the author, come from the following sources: Reports of national coordinators of the subregion of project ITTO PD 16/87, for the Seminar Estandarización de Maderas Tropicales, held in Lima, March 1991. FAO Statistics (published in 1992). GRAN 1992 Statistics by the Junta del Acuerdo de Cartagena. Reports of the producer organizations associated with the Camara Forestal Andina, 1994.

ANNEX 2. ECONOMIC SIMULATION OF FOREST UTILIZATION FOR INDUSTRIAL USES OF WOOD.

Information obtained from forestry producers has been used to generate a simulation of the economic results that could be obtained under three use alternatives. Three scenarios have been identified:

- **Scenario A.** Represents the traditional utilization system, carried out by small entrepreneurs in cutting areas which do not exceed 500 hectares used to selectively harvest high-demand commercial species commanding the highest market prices. The maximum volume obtained under this system is 15 cubic meters per hectare.

- **Scenario B.** Reflects utilization by a medium-sized industrial enterprise requiring 100 000 cubic meters of roundwood per year. It's expected that the enterprise would have access to a 100 000 hectare concession that would ensure its sustainable supplies. Yields could be increased to 30 cubic meters per hectare, using less known species.

- **Scenario C.** Is the utilization that could be carried out by forestry enterprises which have obtained ownership of forests selected for implementing silvicultural practices aimed at increasing yields (after having complied with management plans). Yields could be increased to 70 cubic meters per hectare, which would be enough to reduce the forest area required to supply the industrial scheme described in Scenario B to 42 000 hectares.

Assumptions

With the purpose of comparing the economic feasibility of these three scenarios, a simulation was run assuming the following assumptions: in the three cases a management plan has been elaborated and put in practice by the entrepreneur; annual cut is periodic with a 30-year rotation; in the three cases entrepreneurs pay taxes which are the highest in the region.

The main wood harvesting costs included in the simulation are:

- **Payments to the government**, including a small cost for the managerial costs involved in contracts with the forestry administration

and the amount paid for stumpage, according to the figures obtained in the Andean Forestry Survey, Annex 1.

- **Management Plan** including the description of the resource by carrying out inventories, the preparation of a management plan with a maximum five-year extension and its professionally-sound implementation.

  In the three cases the estimated cost per hectare is the same but costs per cubic meter vary depending on the volumes extracted.

- **Silviculture**, including specific costs for the first year of the most common practices, which are mainly for labor. Each one has a different unit cost according to silvicultural intensity. The differences in costs per hectare and per cubic meter between the different scenarios are due to the different scale of operations.

- **Utilization costs**, including capital costs estimated as harvesting machinery and equipment depreciation, permanent and seasonal labor, fuels and lubricants and transport from the forest to industry.

  It should be noted that in scenario A, small entrepreneurs commonly do not invest in capital goods. However the item Capital Cost is kept to reflect the value of labor utilized instead of machinery and equipment.

- **Sales income** which results from annual volume harvested at average raw material prices as determined inn the Andean forestry survey (Annex 1).

CONCLUSIONS

Table 2d contains a summary of results that shows that:

- Traditional utilization as shown in Scenario A is not profitable. Sales income is lower than the sum of costs and direct taxes. This explains why small entrepreneurs do not manage forests and try to avoid paying taxes.

Note: Forest management costs are distributed among the three cost lines above.

- Scenario B shows a low level of profitability. Gross profits represent less than 5 percent of sales revenues. In order to make this activity profitable it is advisable to compensate for forest management costs by granting private ownership to concessionaires in all cases where areas have been managed according to the management plan.

- In Scenario C profitability is high and equal to more than 33 of sales revenues.

  Despite the fact that costs associated with this option do not include stumpage payments to government (the land is owned by the former concessionaire), income taxes would generate more income to the government than in the other two options.

  Profitability and sales revenues are higher in this option than in any other activity taking place in the forests of the subregion.

Table 2a. Scenario A.

Parameters			
Yield	15	m^3/ha	
Extension	15 000	ha	
Cutting cycle	30	Years	
Annual cut	500	ha	
Annual volume	7 500	m^3	
Payments to Government	**Total US$**	**Annual Cost $/m^3$**	**$/ha**
Contracts	500	0.07	1
Stumpage	27 900	3.72	56
Subtotal	28 400	3.79	57
Management Plan			
Inventories	10 000	1.33	20
Design (5 years)	50 000	1.33	20
Administration	13 000	1.73	26
Subtotal	73 000	4.39	66
Silviculture			
Plantations			
20 ha x $ 300/ha	6 000	0.80	12
Enrichment strips			
150 ha x $80/ha	12 000	1.60	24
Regen. natural			
330 ha x $45/ha	14 850	1.98	30
Subtotal	32 850	4.38	66
Utilization			
Capital cost	150 000	20.00	300
Labor	60 000	8.00	120
Fuel	48 000	6.40	96
Transport	60 000	8.00	120
Subtotal	318 000	42.40	636
Total Cost US $/$m^3$		**54.96**	
Results			
Direct taxes 18%	85.125	11.35	170
Sales revenue	472 800	63.04	946
Profit	(24 525)	(3.27)	(49)
Income tax, 30%	(7 350)	(0.98)	(15)

Table 2b. Scenario B.

Parameters		
Yield	30	m^3/ha
Extension	100 000	ha
Cutting cycle	30	Años
Annual cut	3 333	ha
Annual volume	99 990	m^3

Payments to Government	**Total US$**	**Annual Cost $/m³**	**$/ha**
Contracts	3 333	0.03	1
Stumpage	410 959	4.11	123
Subtotal	414 292	4.14	124
Management Plan			
Inventories	66 660	0.67	20
Design (5 years)	333 300	0.67	20
Administration	86 658	0.87	26
Subtotal	486 618	2.21	66
Silviculture			
Plantations 50 ha x $ 300/ha	15 000	0.15	5
Enrichment strips 400 ha x $80/ha	32 000	0.32	10
Regen. natural 950 ha x $45/ha	42 750	0.43	13
Subtotal	89 750	0.90	28
Utilization			
Capital cost	1 050 000	10.50	315
Labor	800 000	8.00	240
Fuel	340 000	3.40	102
Transport	799 920	8.00	240
Subtotal	2 989 920	29.90	897
Total cost US $/m³		**37.15**	
Results			
Direct taxes 18%	862 914	8.63	259
Sales revenue	4 796 520	47.97	1 439
Profit	218 978	2.19	66
Income tax, 30%	65 9963	0.66	20

Table 2c. Scenario C.

Parameters		
Yield	70	m^3/ha
Extension	42 000	ha
Cutting cycle	30	Años
Annual cut	1 400	ha
Annual volume	98 000	m^3

Payments to Goverment	**Total US$**	**Annual cost $/m^3$**	**$/ha**
Contracts			
Stumpage			
Subtotal			
Management Plan			
Inventories	28 000	0.29	20
Design (5 years)	140 000	0.29	20
Administration	36 400	0.37	26
Subtotal	204 400	0.95	66
Silviculture			
Plantations			
50 ha x $300/ha	15 000	0.15	11
Enrichment strips			
400 ha x $80/ha	32 000	0.33	23
Regen. natural			
950 ha x $45/ha	42 750	0.44	31
Subtotal	89 750	0.92	65
Utilization			
Capital cost	700 000	7.14	500
Labor	800 000	8.16	571
Fuel	250 000	2.55	179
Transport	784 000	8.00	560
Subtotal	2 534 000	25.85	1 810
Total Cost US$/$m^3$		**27.72**	
Results			
Direct taxes 18%	1 023 120	10.44	731
Sales revenue	5 684 000	58.00	4 060
Profit	1 944 320	19.84	1 389
Income tax, 30%	583 100	5.95	417

Table 2d. Summary.

Parameters		**Scenario A**	**Scenario B**	**Scenario C**
Yield	m^3/ha	15	30	70
Extension	ha	15 000	100 000	42 000
Cutting cycle	Años	30	30	30
Annual cut	ha	500	3 333	1 400
Annual volume	m^3	7 500	99 900	98.000

Costs	**$/m^3**	**$/ha**	**$/m^3**	**$/ha**	**$/m^3**	**$/ha**
Payments to Government (Stumpage)	3.79	57	4.14	124	0	0
Management Plan	4.39	66	2.21	66	0,95	66
Silviculture	4.38	66	0.90	28	0.92	65
Utilization	42.40	636	29.90	897	25.85	1 810
Total cost	54.96	825	37.15	1 115	27.72	1 941
Results						
Direct taxes 18 %	11.35	170	8.63	259	10.44	731
Sales revenue	63.04	946	47.97	1 439	58.00	4 060
Gross profit	(3.27)	(49)	2.19	65	19.84	1 388
Income tax, 30 %	(0.98)	(15)	0.66	20	5.95	416

EVALUATION OF POLICIES AFFECTING FORESTS IN LATIN AMERICA: A FRAMEWORK FOR DISCUSSION

Kari Keipi
Jan Laaman

ABSTRACT

Policies affecting forests are unusually difficult to evaluate. Interfaces between forests and human communities are highly individual so that generalizations about policy impacts are dangerous. Forests simultaneously produce both private and public goods and services, some on-site and some external. Many of these goods and services have important values but no market prices. Market failure is prominent, and actions consistent with the social good (at local, regional, national, and global levels) often diverge from actions for the good of forest owners.

For policy evaluation to have a chance of success, there must be political support for the process. The evaluation and the execution of its recommendations must be integrated in decision-making cycles and budgeting of the affected organizations. The policy principles such as sustainable forest management, often indicated as the guiding policy in Latin America, have to be technically feasible to implement.

The criteria for defining successful policies affecting forests generally should include four overriding concerns: economic growth, social distribution, resource sustainability, and people's participation. These are not necessarily the criteria which have governed the traditional forestry of past decades. The future of policy evaluation in forestry (and other natural resources) is likely to see increasing demand for methods which emphasize multi-criteria approaches, along with strategies to integrate and harmonize them.

The paper discusses the ex-ante evaluation of proposed agricultural, land, water and forest policies in Peru, where the government favors strategies that facilitate economic growth through private investments. On the basis of an ex-ante evaluation it was considered important to: i) redefine the terms of reference for studies on policy changes in order

to minimize possible risks affecting the environment and the forest resource and (ii) design mechanisms to monitor and evaluate the program during its execution. The Government of Peru has already agreed to take actions to establish a national environmental authority considered important for the program monitoring, and to carry out basic studies before launching new forest policies.

Consultations would be carried out as part of the process to formulate new forest legislation. The bottom-up expression of problems and opportunities can be turned over to a top-down "expert review" to ensure that any remaining gaps are filled.

There is a long way to go before economic and environmental analysis can be used effectively to decide on the optimal degree of environmental protection in policy programs or investment projects. Nevertheless, by anticipating undesirable social and environmental effects of projects and explicitly including measures for their prevention, control and mitigation, the ex-ante evaluation provides a measure of protection.

The process will become mature when the national authorities can confidently apply a set of evaluation criteria to policy programs and investment projects, irrespective of the source of the financing. The social and environmental assessments must become integral components in the appraisal of projects in Latin America.

In the highly emotional battles over tropical forests, where opinions tend to be polarized, obtaining a useful problem definition is a major accomplishment. The adequacy of problem definition in turn determines the prospects for good policy evaluation. Given how little experience we have in policy evaluation for forests in Latin America, we should be examining our learning capacity. If our current position to learn from past and ongoing evaluation is not strong, how can it be improved? (See Annex 1).

THE NEW POLICY CONTEXT FOR FORESTRY

The central question facing forest-related policy-making is: "Forests for whom and for what?" (Clawson 1975). The existence of multiple products and services from forests (some of which are not marketed)

and the existence of alternative uses for forested land means that policies affecting forests affect many disparate user and beneficiary interests. Therefore, the central policy question is answered in different ways by environmental groups, indigenous peoples, timber industries, livestock industries, and other interest groups. For the forests of Latin America, competing claims for forest goods and services are numerous and politically volatile.

Historically, governments have addressed these competing claims on forests by attempting to increase controls and expand functions within centralized agencies. This explains regulated timber concessions, mandatory reforestation, and controlled forest products trade (Repetto and Gillis 1988). The performance of these centralized Public Forest Administrations (PFAs) has suffered from two sorts of failures. "Failure by commission" is the government's production and regulation of goods and services which private enterprises could supply more efficiently (Krueger 1992). There has a been a clear tendency toward privatization during various years in Latin America in order to correct this situation. The opposite error, "failure by omission," is when governments fail to properly enforce property rights, guide land use planning, etc., thus jeopardizing biodiversity, wildlife habitat, and other public goods from forests.

The new policy context for forestry and other resource sectors is characterized by increasing recognition of these problems. Thus the "revised agenda" features changing objectives, ideology, organizational structure, and policy means. In simplified terms:

- The concept of sustainable development has been given a high priority. Sustainability is an overriding objective for different policies affecting the forest resource.

- The previous focus on timber extraction is now joined by pressures for environmental management and social forestry.

- Traditionally, various public forestry administrations (PFAs) have engaged in one or more phases of seedling production, afforestation and reforestation, wood processing, export marketing, and other activities which overlap the domain of private enterprises. The current ideological trend is towards privatization of production, with governments present as facilitators rather than producers.

- In numerous countries, forestry agencies have been centralized and sometimes closed bureaucracies with a weak presence in the rural countryside. Pressures for decentralization and participatory policy-making have been building steadily.

- There is propensity in Latin America to regard policy as mainly laws and regulations. Yet lately there has been more reliance on market-based instruments and fiscal incentives to supplement ineffective legal and regulatory structures. On the other hand, privatization should not be considered as an alternative to government presence, which is still needed since many forest products and services are public by nature.

A complete transition from the old agenda to the new one has not been fully realized yet. Rather, the new agenda is still the target that the PFAs are struggling to achieve. Because much of the impetus for these changes has not originated within the PFAs, the transition cannot move far or fast until they internalize the policy shifts now prescribed. Policy evaluation in forestry commands attention precisely because of contrasting hope and skepticism over the direction of policy changes.

The purpose of this paper is to highlight the nature and complexities of policy monitoring and evaluation. It first presents a description of the objectives and constraints of a policy analysis. It then proceeds to discuss criteria and tools used in the evaluation process. Finally, the paper presents a case of policy evaluation for Peru, especially from the point of view of its environmental impact. This framework could also be used in other countries facing governmental structural adjustment programs which affect their forest resources.

Policy Evaluation: The Setting

Objectives

The objectives of a fully developed policy monitoring and evaluation process should be to:

- Review the adequacy and realism of policy goals, targets, and intervention strategies.

- Compare policy attainment with targets, and identify reasons for observed gaps.

- Specify winners and losers from different policies, and help determine whether and how to support losers.

- Assess the commitment and capability of government units to implement policies based on the adequacy of their leadership, political base, technical capacity, budgets, personnel incentives and sanctions, external linkages, and reporting arrangements.

- Determine the extent to which different public and private institutions are strengthened or weakened by particular policies and clusters of policies; and

- Use the preceding analyses as a basis for proposing corrections and revising expectations in policy initiatives.

The usual purpose of policy evaluation is to describe current and prospective policy issues and problems for directors and staffs in the PFAs. Additional users of policy evaluations include ministries, environmental commissions, budgetary authorities, development banks, international organizations, and NGOs. Clearly, different users expect different things from an evaluation.

The evaluators must ensure that the impacts explored reflect the effects on a broad group of stakeholders and clients in any particular evaluation. The stakeholders and clients must agree on the types and levels of policy impacts to be evaluated. Good policy analysis distinguishes short-term from long-term impacts, and it studies direct and indirect effects. Normally the sectoral view should be wide enough to encompass policies in forestry, agriculture and livestock, land colonization, mining, energy, and infrastructure. Finally, several types of policy categories can be defined, e.g. fiscal and economic, legal and regulatory, trade and commercial, and infrastructural and developmental.

Constraints

Forest policies and policies indirectly affecting forests are unusually difficult to evaluate. Interfaces between forests and human communities are highly individual, so that generalizations about policy impacts are dangerous. Forests simultaneously produce both private and public

goods and services, some on-site and some external. Many of these goods and services have important values but no market prices. Market failure has been prominent, and actions consistent with the social good (at local, regional, national, and global levels) often diverge from actions that may be beneficial for the forest owners.

In many areas of Latin America, forest inventories are so incomplete that there is a lack of reliable information on the resources and values at stake under different policy tradeoffs. These inventories normally provide data on timber but usually not on other goods and services provided by the forest. Forests may cover large areas. They often consist of a wide variety of ecosystems and are located in isolated regions. Additionally, biophysical processes in forest-based projects are highly dynamic. Hence decades may be required to monitor and assess forest regeneration, watershed impacts, and changes in plant and animal composition.

Ordinarily, the preceding constraints should signal a "go slow" strategy. However, conservative policy-making is made difficult by incessant local and national political pressures for new lands, and by the global spotlight focused on the region's tropical forests. The matter of what to do with tropical forests arouses passionate advocacy, including environmental advocacy from the north. High levels of emotion produce an uncomfortable setting for objective policy review and analysis.

By its nature, policy evaluation is inherently subjective and politically sensitive and may therefore be resisted by certain groups. It can be a subversive instrument which shifts the balance of political power and management authority. Three sets of requirements must be met in order to increase the probability of success for policy evaluation (Gray and Jenkins 1982):

Political preconditions. The evaluation process must be supported by high-level government officials. It also depends on positive political and administrative incentives favoring policy critiques.

Organizational preconditions. The evaluation should be able to penetrate the policy-making processes, implying that evaluation is integrated with decision-making cycles and budgeting.

Technical preconditions. The evaluation process requires adequate evaluation skills (professional capacity), conceptual frameworks, analytical methods, information systems, and reporting systems.

The political and administrative climate must promote and sustain information-based consensus management as well as a "best value for money" approach for public programs, and a willingness to cut back activities not consistent with the highest priorities of government. These special circumstances are satisfied only infrequently, largely due to the need to overcome the past weaknesses of forestry institutions, summarized as follows (Llaurado and Speidel 1981):

- Isolation of senior PFA executives and staff from national policy makers, leading to low priority for forestry in national planning and financial allocations.

- Control of policy issues by powerful and influential special interests.

- Functional overloading of PFA authorities with regulatory duties and excessive paperwork responsibilities.

- Policies and programs that conflict with other sectors and powerful units of government, e.g., land colonization, agriculture, minerals and petroleum, roads and public works, etc.

- Insufficient number of PFA personnel with education and skills in the resource management disciplines, modern management principles, and the social sciences.

- Forestry mission statements which are either vague or idealistic, and not always supported by operational plans and budgets.

- Too much emphasis on implementing programs rather than facilitating planning and working toward consensus on policy directions.

- Deficient information base in terms of forest inventories, production statistics, etc., and low capacity to collect and manage this information; and;

- Poor employment conditions in terms of low salaries, small operational budgets, rapidly shifting priorities due to government changes, and negative image of forestry by outsiders; all of which lead to low morale among the PFA personnel.

Many PFAs continue to experience inadequate institutional capacity, often despite many years of efforts to grow stronger. The evaluation of

new policies affecting Latin American forests must simultaneously analyze how institutions will implement them.

POLICY EVALUATION. ANALYTICAL FRAMEWORK

Scope

Table 13. Scope of Policy Inventories for Central America in RENARM.

Policy Category	Resource Components			
	Agriculture & Livestock	Water sheds	Forest	Biodiversity & Wildlands
1. Fiscal				
2. Trade				
3. Regulatory				
4. Development and Infrastructure				

Source: RENARM (1990).

The scope of policy evaluation in forestry and associated sectors is illustrated by considering existing examples. The Regional Environmental and Natural Resources Management project for Central America (RENARM 1990) employs the framework shown in Table 13. The evaluators attempted to identify all laws, regulations, and other policies in each of four categories as they affect four resource components. In other contexts, the number of policy categories and resource components can expand or contract in relation to evaluation budget, time frame, and required detail.

The scope of policy evaluation under RENARM is ambitious. However, it provides a comprehensive organizing framework. In other applications, the scope can be scaled back or narrowed through priority ratings, e.g., a rough ranking of problems and issues. In some countries the principal policy questions affecting forests may be reduced to road development, subsistence agriculture, timber concessions and land titling. The art of policy evaluation is to identify the critical elements

early so as to give them proper attention, while not prematurely rejecting aspects which hindsight will show to be essential.

Thus it is possible to begin with a list of policy categories like those shown in Table 14. Each main category can be divided into separate but interrelated themes, resulting in many possible policy consequences. This framework may vary in different countries, but provides an overview to guide further discussions.

Table 14. Checklist of Policy Categories for Forestry and Environment

- Concessions for the use of public timber.
- Stumpage pricing.
- Policies affecting private forest management.
- Forest industry and export policies.
- Reforestation policy.

Criteria

For Latin America, the criteria for defining successful policies affecting forests generally should include four overriding concerns:

- Economic growth: The total mix of policies in forestry and in complementary and competitive land uses should be guided by strategies which elevate the country's national income.
- Social distribution: The goods, services, and values produced by forests should be increasingly distributed in the direction of indigenous peoples, the lowest-income populations, women and children, and other elements among the socially disadvantaged.
- Resource sustainability: Policies for the protection and management of forests should make the country at least as well off in the future as it is in the present.

- People's participation: Policy-making in forestry or affecting forests should rely on democratic processes. Many countries in Latin America and most donor agencies advocate community participation in policy formulation as a means to better achieve the above objectives. (See, for example the Dutch policy, BOS. 1991).

These are not the criteria which governed the traditional forestry of past decades. Their complexity poses substantial difficulties for policy evaluation in terms of developing suitable frameworks and indicators. Moreover, the pursuit of multiple complex objectives is problematic: "Few things are more difficult for policy makers to do than to pursue multiple objectives simultaneously" (Ascher and Healy 1990, p. 181). Problems arise when pursuing one objective, say equity, may imply reduction of another, such as economic efficiency. The relative importance accorded to the various objectives is different for different groups in society.

Additionally, individual countries may attempt to interject their own criteria and procedures into the multilateral framework of lending and technical assistance. Hence in 1988, the United States Government proposed to the Inter-American Development Bank a set of standards to be considered in the review of projects that may have adverse impacts on tropical moist forests. The standards included the establishment of long-term research activity for large projects; inventories of plant and animal species prior to project initiation; and impact studies relevant to watersheds, wildlife species, and protected areas. Other environmental and forestry criteria were recommended for projects with investments in roads, dams, and colonization and resettlement projects. The framework also assumed that development projects should not proceed except when overriding evidence could be provided that the rural poor benefit significantly.

Methods and Tools

Textbooks and past policy evaluations furnish numerous examples of methodologies and techniques for policy evaluation in natural resources. The first challenge is to match methods to purpose. The second is to choose methods which favor active participation by a wide spectrum of government bodies, NGOs, rural populations, and other stakeholders. The third challenge is to integrate economic, welfare, participatory, and environmental criteria within a unified framework.

The inventory of available methods for policy studies is large. Included are monetary evaluation methods, impact matrices, balance sheets, and multi-criteria methods (Faludi and Voogd 1985). Many excellent references guide survey design, data gathering, interviewing, participant observation, and statistical analysis (e.g. Casley and Kumar 1988). Frameworks and methods of environmental impact assessment are now widely available either nationally or from external sources (e.g. World Bank 1991).

On both philosophical and pragmatic grounds, none of cost-benefit analysis, social analysis, or environmental impact analysis is totally adequate for policy evaluations. The use of cost-benefit analysis inconveniently forces all environmental considerations into an economic framework when many of the environmental goods and services do not have market-based valuation characteristics. Forests produce ecological, aesthetic, cultural, symbolic, and intrinsic values which lie well beyond our current ability to measure and value with any precision. On the other hand, environmental impact studies often focus too narrowly on the defense of nature while neglecting human utility and economic values.

Social evaluation alone is insufficient, since it often omits aspects of economic growth and biophysical impact. Each partial approach has evolved to satisfy different purposes. The future of policy evaluation in forestry (and other natural resources) is likely to see increasing demand for methods which emphasize multi-criteria approaches, along with strategies to integrate and harmonize them. (Vaughan and Ardila 1993).

POLICY EVALUATION: CASE OF PERU

The practical details of policy evaluation can be illustrated with a few examples from the Inter-American Development Bank's recent experience in countries like Honduras, Nicaragua and Peru. In this presentation the discussion is confined to a program under consideration for financing in Peru.[44]

44. The operation is still under preparation and may or may not be approved for IDB financing in the form presented in this document. Therefore the case should be considered only as an example of a possible ex-ante evaluation process.

The Government of Peru has requested a loan of approximately US$146 million for the following purposes:

1. Structural adjustments in agricultural policies that the government would like to undertake. The objectives of the adjustments are:

   - to decrease direct government intervention through the reorganization of the sector.
   - To strengthen private property rights for land and water and to develop the corresponding markets.
   - To promote competitive and transparent markets for agricultural products.[45]

2. Investments in:

   - Consultancies and equipment to support the reorganization of the sector.
   - Strengthening of agricultural information systems.
   - Land titling and registration.
   - Research and technology transfer in animal and plant health systems.
   - Strengthening of forest administration.
   - Monitoring of forest and water resources affected by the program.

The hybrid structural adjustment and investment program would be based on the current government policy to continue applying strategies that facilitate the economic growth of Peru through government and private investments. These strategies include: a) deregulation of foreign exchange; b) removal or reduction of import and export taxes; c) liberalization of interest rate levels in financial markets; d) elimination of price

45. Note that the policy matrix does not include a forest policy component as a condition for disbursements. However, the investments subprogram incorporates studies for helping to prepare the new forest policy leading to legislation.

controls of products and inputs, and e) application of strict fiscal and monetary discipline.

The forests of Peru cover about 70 million hectares within a national territory of 128 million hectares. Most deforestation has occurred in the high selva, where landless farmers are moving into areas that can be reached from a road. Most of these lands have shallow, erodible soils and are unsuitable for sustainable agriculture.

The past timber concession system has not succeeded in placing forests under sustainable management. In principle, forest extraction should follow the norms of an approved forest management plan. In practice, the concession operators develop forest management plans but often do not comply with them. With no government presence, landless farmers spontaneously colonize the accessible areas and deforest them.

Critics of past approaches believe that these policy weaknesses can be remedied by offering long-term property rights through privatization. A proposed new forestry law embodies the privatization concept by authorizing the national government with radical measures to sell forest resources in public auctions at prices above appraised value, to sell some forested lands, and to grant forest concessions (up to 50,000 ha) for up to 60 years duration. Proponents of the approach believe it will encourage long-term private investment in forest management, and concentrate production in a few areas. Opponents argue that the timber industry will obtain generous extraction opportunities, which may lead to serious deforestation in the current absence of adequate government controls. The objective is to identify clearly the alternatives and analyze them according to appropriate criteria.

POLICY SETTING AND CRITERIA

This case demonstrates the changed objectives of forest policy discussed on page one of this paper: The focus on timber extraction is joined by local, national and international pressures for environmental management and social distribution.

These considerations have led to a requirement for comprehensive evaluation and monitoring to compare policy attainments with targets of

the different components of the program. With respect to forests and water, the ex-ante evaluation showed that the probable winners of the originally designed privatization policies were to be forest industries and large farmers while the possible losers were small farmers and indigenous communities. This observation called for a revision in the program design. Also, the institutional capacity to implement the policies and to monitor their consequences was found to be inadequate. Therefore, it was decided to include an institutional strengthening component for the forest sector that had not been considered in the original proposal.

The three sets of requirements for policy evaluation indicated on page four of this paper are addressed in the following way:

Political preconditions

The draft policy letter signed by the high authorities of Peru and the IDB indicates the need for continuous monitoring as well as a mid-term evaluation of the program. The Bank is committed to finance and carry out a full scale ex-post evaluation of the operation.

Organizational preconditions

The policy letter states that the creation of a national environmental authority with adequate financial resources should be a condition for program disbursements.[46] The IDB would contribute to the financing of this entity through technical cooperation. The cost of monitoring and of the mid-term evaluation are included in the program budget. The activities would be carried out by independent consulting companies with the participation of Government entities. The national environmental authority would oversee that ecological criteria are defined and met. The program would provide institutional strengthening to the National Renewable Natural Resources Institute (INRENA) to carry out different control measures in the field.

Technical preconditions

Detailed terms of reference for the monitoring and evaluation are being prepared. They will include information on the type of the

46. Policy letter is a document signed by high authorities of the borrowing country and directed to the President of the financial institutions (IDB). It higlights the measures to be adopted by the country in order to facilitate the intended policy changes through a structural adjustment program.

specialists needed for the tasks, baseline data requirements, and reporting systems. The agriculture and natural resource information system, financed through the program, would help generate data for the monitoring and evaluation.

Program activities relate to the list of policy categories for forestry and environment indicated above in this document.

- Forest management policies would be designed through studies that also would result in the preparation of new forest legislation. The program would also finance institutional strengthening of INRENA to execute these policies.

- Protected areas and wildlife policies would be strengthened through a study, financed by the program, for the preparation of new legislation in this field.

- Agriculture and livestock policy would be changed by actions leading to a decrease in government intervention and the reorganization of the public sector. Markets for irrigation water and for agricultural products would be made more competitive and transparent.

- Land tenure would be addressed by financing land titling and land registers.

- Macroeconomic and financial policies of the government would be enhanced by program support for the continuation of current policies.

The overriding criterion used to choose policies for the structural adjustment component of the program has been to promote strategies that increase Peru's economic growth through the agricultural sector. Of the other possible policy criteria mentioned on page six of this document, the need for equitable social distribution of benefits has been secondary. Therefore, a major effort in the monitoring and evaluation is the follow-up of the social consequences (especially migration) resulting from water and land policies. Since the evaluation of the various preliminary proposals for a revised forest law focuses on forest resource sustainability, the program is financing studies that will define a solid basis for the application of this concept. The new forest legislation is being discussed by measure of comprehensive consultations with interested parties. It is proposed that forest cutting permits will be subject to public hearings.

The following presentation considers the program's environmental impact and its effect on the forest resource. It was considered important to: a) identify the ex-ante situation of the affected forests; b) carefully design the terms of reference for studies that will minimize possible risks affecting the environment and the forest resource and c) design mechanisms to monitor and wherever possible, quantify the program impacts during its execution.

Possible Positive and Negative Impacts of Policy Changes

The principal thrusts of the planned policy changes are privatization and de-bureaucratization. Some of the presumed positive impacts of the change on forestry relate to:

1. Incentives for the private sector to manage forests with a long-term perspective due to established property rights through privatization.

2. Incentives for owners to become the natural defender of their lands against colonization and deforestation.

3. Incentives for increased efficiency in the utilization of productive forests (which would be clearly separated from the protection forests), contributing to sustained management of the affected forest resource and preservation of protected forest.

According to the ex-ante evaluation, the Peru program may produce highly significant indirect negative environmental effects:

1. New forest road construction and timber harvesting would result from the proposed privatization of forest and from the expected increase in forest concessions in government lands. This presents a risk of increased deforestation due to possible spontaneous colonization if the new forest owners and concessionaires do not become defenders of the forest resources as expected.

2. Privatization and separation of water rights from land tenure may increase the sale of land by small farmers, increasing their migration to big cities or to the Amazon forest.

3. In association with the preceding policy changes, creation of a dynamic agricultural land market by the program may indirectly accelerate the deforestation of the Amazonian forest.

Environmental Safeguards Applied for Forest Policy

For the Peru case, the program purpose is not primarily environmental. However, there are several kinds of measures that can be taken to make it environmentally sound: These may fall into the following categories (Vaughan and Ardila 1993): a) avoidance; b) improvement and c) pure mitigation. Avoiding the **problem** altogether is one alternative. For example: the forestry component could be excluded from the program due to the many risks involved. However, since the preliminary forest law proposals presented potentially very negative environmental impacts that could become reality without the program intervention, a decision was made to finance studies through the program that would establish a better basis for the formulation of the new legislation.

Based on an analysis using the methodology of RENARM, the following measures of **improvement and mitigation** were included in the terms of reference for studies to minimize environmental risks:

1. The Government has agreed to guarantee the property rights of indigenous communities and other communities interested in sustainable forest management in areas affected by possible privatization.

2. A separate study would be carried out to identify forest areas to be considered for privatization and concessions. According to the terms of reference of the study the following categories of forests should be excluded from productive purposes: a) forest with high level of biodiversity and with occurrence of endemic species; b) Amazonian rare ecosystems that are not represented in the national system of protected areas; and c) other fragile ecosystems that are located primarily in virgin forests.

3. The proposed new forest law is to be subject to ample consultation with grassroots community organizations, environmental and industry NGOs, and other interested parties.

4. The proposal for new legislation should incorporate the following concepts: a) definition of environmental restrictions on forest utilization according to the principles indicated in point; b) above; c) consultation with communities affected by possible forest harvesting; d) establishment of transparent bidding procedures for concessions with possibilities for appeal; e) establishment of clear forest control mechanisms by the state through INRENA and the regional governments; f) preparation of forest management plans and environmental impact assessments with adequate ecological criteria, which should be approved as a precondition to the authorization of any forest harvesting; g) definition of mechanisms that would facilitate adequate funding to enable INRENA to practice forest control and to perform forestry research; h) establishment of user fees and payments to the government that would reflect the real value of the forest considering its multiple uses.

5. The program would finance a separate study for the preparation of legislation for protected areas.

6. The program would finance the strengthening of INRENA and the monitoring of the impacts of the proposed actions.

Environmental Safeguards Applied for Water and Land Legislation Affecting Forest Resources

As a result of the ex-ante evaluation, the following measures have been planned in order to mitigate possible negative indirect impacts on migration, as well as possible increased colonization of the Amazon forest:

1. The program would monitor possible monopolistic practices in the establishment of prices for water use, and the government would tax water use to control these practices.

2. Land titling and registration will improve stability in land tenure and indirectly diminish the risk of migration. The assurance of property rights for indigenous communities and for others interested in sustainable forest management should have a positive effect on the forest resource.

3. Proposed of mechanisms in water legislation facilitate the financing of watershed management, and this may increase afforestation and the preservation of watershed forests.

Monitoring and Evaluation

The program would finance the contracting of a consulting firm to assist the country in carrying out yearly monitoring and a mid-term review of the program. The following information is to be collected and analyzed through sampling: a) land use changes; b) evolution of deforestation; c) situation of protected areas and selected species of fauna and flora, and d) monitoring of water quality. Socioeconomic data would be collected on concentration of land tenure and water use rights, land and water prices, disposable income in communities in selected watersheds and social indicators related to migration.

The results of the monitoring are to be published and disseminated. The monitoring plan should identify possible actions to mitigate the most probable environmental and social risks caused by the program. If the mid-term evaluation shows significant negative impacts or deficiencies in mitigating them, the government has, on a preliminary basis, agreed that the IDB may stop disbursements for the program until corrective measures are taken.

The loan contract between the Bank and the Government of Peru would include a specific clause requiring an evaluation of INRENA's institutional capacity for the administration and oversight of sustainable natural resource management. The evaluation may identify personnel changes needed to improve the institutional capacity of INRENA. The IDB intends to finance an ex-post evaluation of the program using the basic data produced by the annual monitoring and mid-term evaluation of the program.

Inter-Sectoral Character of Policy Analysis

The case of new policy actions and proposals in Peru indicates the distinctly inter-sectoral character of analysis. Possible negative consequences for forests are driven by external forces such as population growth as well as land and water policies. Natural forests on lands of low agronomic productivity are almost always a residual resource.

Consequently, external activity usually impacts forestry more than the inverse. Hence it may be less useful to frame evaluations in terms of a forestry "sector" than in terms of interdependent effects in regional development and natural resource management. The concepts and tools of land use evaluation should take precedence over purely sectoral analysis. Nowhere is the holistic, systems model of thinking more important than in evaluating natural resources policies.

Evaluation should be made consistent with the still evolving understanding of the issues it addresses. The principal issues in the case of Peru emerge as technical parameters (land use categories, concession lengths, etc.) and market parameters (pricing of water, land, timber, etc.). Not as explicit in the documentation are social criteria (e.g. impacts on migration, equity issues, etc.). Participatory criteria were included in the design of the program at a relatively late stage. The multi-dimensional nature of the evaluation (including consideration of growth, distribution, participation, and environment) requires constant review so that the evaluation does not fail for being too narrow and incomplete in its perspectives.

Reliable technical evaluation by nationals or external consultants is only one aim of policy evaluation. Evaluation requires impact indicators, as well as process indicators. Policy evaluation should be an open, interactive, and communicative exchange of perceptions and interpretations. It has its technical components, but these should be subordinate to social and political processes. For example, Peru's productive forest zoning requires a number of technical mapping exercises. However, indicators regarding how well or poorly the information is used are also necessary in order to evaluate the objectives of environmental protection and sustainable development used in the program.

In Latin America, the extent of participatory approaches to policy formulation and assessment is not well documented. Some PFAs have formed steering committees, advisory councils, and other consultative bodies for the exchange of perspectives on policy questions. Such groups often include other government ministries and agencies, conservation NGOs, peoples' associations (e.g. for indigenous groups), forest industries associations, and hearings open to the general public. The bottom-up expression of problems and opportunities can be turned over to a top-down "expert review" in order to ensure that any remaining gaps are filled.

CONCLUDING OBSERVATIONS

As suggested by the case of Peru, the evaluation of policies affecting forests is exceptionally challenging. The multiple dimensions of evaluation range over economic, welfare, environmental, and participatory indicators of success and failure. Policies affecting forests arise both inside and outside the agencies and enterprises closest to the forests, causing policy interactions to be numerous and complex. Moreover, true policy practice often departs substantially from formal laws and regulations, even though governments emphasize legislation (rhetorical intent) over practice (sobering reality).

There is a long way to go before ex-ante evaluation can be used effectively to decide on the optimal degree of environmental protection in policy programs or investment projects. Nevertheless, by anticipating undesirable environmental effects of projects and explicitly including measures for their prevention, control and mitigation, the ex-ante evaluation process provides a measure of protection. The process will become mature when the national authorities can confidently apply a set of evaluation criteria to policy programs and investment projects, and the environmental assessment process becomes an integral component in the appraisal of projects in Latin America. In the meanwhile, the environmental assessment process in cases such as Peru will be strengthened to the extent it places emphasis on the need to find cost-effective solutions to natural resource management and mitigation of possible negative environmental impacts. (See Vaughan and Ardila 1994). In conclusion, we observe some progress in policy evaluation since the beginning of its modern era in the 1960s:

- The most pressing policy problems affecting forests almost always cut across multiple sectors and agencies. The easier task of evaluation is assessing internal efficiency, i.e., doing things right or wrong within a public forestry administration. The more challenging task is assessing relevance, i.e., are the right things being done at all when considering the total land use system?

- Policy evaluation is not only a technical exercise, but also an opportunity for policy dialogue. Under ideal conditions, policy evaluation draws wide participation across different sectors to debate "for whom and for what"; improves understanding of public forestry programs; defines management accountability in the government and

private sector; and helps build constituencies for needed policy changes.

- In the highly emotional battles over tropical forests, where opinions tend to be polarized, obtaining a useful problem definition is a major accomplishment that may be followed by an adequate assessment of the policy.

Given how little experience we have in forestry policy evaluation in Latin America, we should be examining our learning capacity. Latin American countries and international organizations are in this process. If our current position to learn from past and ongoing evaluations is not strong, how can it be improved?

ANNEX 1

Principle of Sustainable Forest Management

The concept of sustainable forest management is an element included in forest policy statements of the majority of the Latin American countries. However, there are serious doubts as to whether the principle works in the case of mixed tropical forest, due to the following factors (cf. Dourojeanni 1994):

- Low economic profitability to the forest owner as a result of the character of the forest resource, its products and the high transportation and processing costs.

- Lack of respect of well-meaning forest policies and laws by the forest owners, farmers and the public.

- Institutional weakness in the enforcement of the laws protecting the sustainability of the forest resource.

- Dearth of technically viable forest management techniques.

Even in the many cases where the techniques for forest management in Latin America have proven to be feasible, population pressure and deforestation caused by inadequate non-forest policies are destroying the managed forests and protected areas in the region.

Some of the major measures to counteract these obstacles may be to:

- Give the private sector more responsibility and freedom to find the most economical solutions to forest management within the framework of sustainability as defined in the new legislation while maintaining adequate government control.

- Strengthen government agencies to carry out their responsibilities in forest policy development and execution.

- Increase public awareness of the problem of deforestation.

- Facilitate the participation of environmental NGOs, grassroots organizations and other groups in the formulation and implementation of forest policies.

- Finance research and technology transfer for sustainable forest management.

- Intensify the existing agricultural land use through adequate agricultural policies and programs.

- Contribute to the preservation of protected areas through legislation and financing.

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CERTIFICATION OF FOREST PRODUCTS PERSPECTIVE FROM LATIN AMERICA

Julio César Centeno

INTRODUCTION

Ecolabelling is quickly becoming a standard in the trade of a wide variety of goods, from food and pharmaceutical products, to aerosol sprays, tires for automobiles, refrigerators, detergents, light- bulbs and cosmetics.

During the past few years a series of initiatives have come up to limit the trade of forest products to those originating from sustainably managed forests. The identification of such products would take place through the certification of forest management operations and the tracing of products from the forest to the final consumer, based on a set of criteria upon which there is yet no international consensus.

Most of these initiatives have originated in industrial countries and focus on the trade of tropical timber. Practically all certifying organizations in operation today are from industrial countries. Each one has unilaterally developed a set of criteria of good forest management with which producers in the tropics are supposed to comply should they pretend to export their products as originating from sustainably managed sources.

In several European countries there are already regulations prohibiting the use of tropical timber in public works, and proposals to extend such prohibitions to all the European Community have been presented to the European Parliament. Only imports proven to come from well-managed tropical forests would be allowed, according to a reliable and independent certification.

Similar regulations exist in the North American states of New York and Arizona. A bill was introduced last year to the US Congress by Kostmeyer (HR-2854) to prohibit all imports of tropical timber to the US, except products proven to come from well-managed forests, according to an independent and reliable certification.

What "sustainable" forest management means, nor what the criteria are to assess it, are clearly defined in any of these cases. The certification of forest products may become a new non-tariff barrier, with a high degree of elasticity in its definition, applied discriminatorily only against products from tropical countries.

Exports of timber products from Latin America are modest compared to those of South East Asia or Africa. Even though forests cover over 50 percent of the territory, they account for less than 1 percent of the gross regional product, measured according to established valuation standards for the economic activity. The little economic relevance of the forestry sector, and its limited role in international trade, have kept most countries of the region relatively isolated from the debate on forest products certification.

However, over 50 percent of all tropical forests are located in this region. Development strategies tend to include among their objectives a more significant participation of the forestry sector in improving social and economic conditions of the region. In most cases, national policies include a clear commitment to the protection of the forest heritage in order to sustain the production of goods and services, and to protect genetic resources as strategic reserves for future generations.

The establishment of rules and regulations limiting the international trade of wood and wood products from tropical forests, based on criteria that Latin American countries have not contributed to defining, may bring disadvantages to the achievement of sustainable development models in the region.

This document analyzes the origins, present state and tendencies of the certification of forest products, and provides recommendations for the definition of a regional strategy on this subject.

ORIGINS

Deforestation in the Tropics

Although many warnings had been issued in advance, in the early 1980s the world was shocked by the first comprehensive tropical forest

assessment, carried out by the United Nations Food and Agricultural Organization (FAO). Eleven million hectares of tropical forests were being lost per year by 1980, the equivalent to 20 hectares each minute. About half of that destruction took place in Latin America.

The shock was more than justifiable. Tropical forests cover only 7 percent of the planet, but are known to contain over three quarters of all plant and animal species living on Earth. Apart from the environmental goods and services they provide, technological developments are quickly turning their diversity of living organisms (biodiversity) into one of the most valuable economic and strategic resources on the planet. Tropical genetic resources are expected to have a profound worldwide effect on the production of food, pesticides, chemicals, medicines, and pharmaceutical products. Although such technologies have been largely developed in industrial countries, the resources on which they are based are largely in tropical countries.

Tropical forests also play a key role in the maintenance of weather patterns, affecting all countries on Earth. They influence rain, wind, humidity and temperature worldwide. They are huge reservoirs of carbon. Carbon emissions account for about half of the greenhouse effect. About 20 percent of those emissions can be related to tropical deforestation. The greenhouse effect, in turn, threatens human health and security on a scale which has prompted tremendous scientific and political concern.

Tropical forests quickly became one of the key points in the international political agenda. Deforestation was conceived as a threat not only to the stability and well-being of tropical countries, but of all countries on Earth. Should deforestation continue at the levels registered in the 1980's FAO assessment, the loss and the threat to humanity would be immense.

Industrial countries used their persuasive economic, technological and political power to encourage tropical countries to agree to an international agenda for curbing deforestation. A two front strategy was then designed: the Tropical Forestry Action Plan (TFAP) and the International Tropical Timber Organization (ITTO).

TFAP

The TFAP was conceived and coordinated through a committee of elite organizations: The World Bank, the United Nations Development Program (UNDP), the Food and Agricultural Organization of the United Nations (FAO), and the World Resources Institute (WRI). Under the motto of "saving the tropical forests" (FAO, etc., 1987), it was meant to control deforestation in the tropics under a five-year plan and an 8 billion dollar budget.

"The plan is the center piece of a new coordinated approach to solving the tropical forest crisis. It provides a strategy that is flexible, that responds to carefully determined needs, and above all that is realistic and practical." (TFAP, 2).

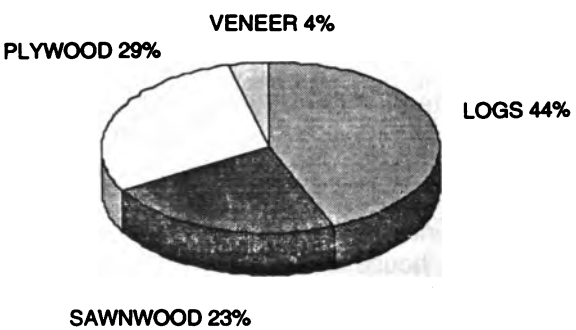


Fig. 1. Exports of tropical timber roundwood equivalents, 1990.

"The plan aims to catalyze action to improve the lives of rural people, to increase food production, to improve methods of shifting cultivation, to ensure the sustainable use of forests, to increase supplies of fuelwood and the efficiency of its use, and to expand income and employment opportunities." (FAO *et al.* 1987)

Each tropical country was requested to prepare a national development plan for the sector (a National Action Plan) following guidelines determined by the promoters of the TFAP. Industrial countries organized themselves into a Club of Donors, including representatives of their governments and their financial organizations, such as the World Bank and Regional Development Banks. The Club of Donors also included representatives of international organizations, such as FAO, UNDP, WRI, IUCN, WWF and others, who provided the necessary eco-

nomic and technological assistance. The preparation of each national plan was actually co-sponsored and coordinated by consultants from donor countries in cooperation with the national forestry institution. Despite the bureaucratic mechanism in place, in most cases the National Forestry Action Plans were little more than an incoherent list of poorly prepared projects seeking financing.

The Club of Donors approved or disapproved the whole or part of the activities contemplated in each National Action Plan. Only the activities which were approved by them could eventually be implemented. The others would be placed on hold, either for lack of international economic and technological cooperation, or as a consequence of the limitations on the use of national funds derived from the corresponding "structural adjustment programs." National funds were subject to economic priorization, according to guidelines established by the World Bank and the International Monetary Fund, both controlled by industrial countries.

At the end of the stipulated period for achieving TFAP objectives, tropical deforestation was not only still there, but it had increased alarmingly. According to FAO, during the 80s tropical forests were lost at the incredible rate of 16 million hectares a year. The yearly average for the decade was 50 percent higher than in 1980. One hundred and sixty million hectares of tropical forests were lost during the decade, 30 hectares each minute. The action plan, so pompously announced at its launching, had done little to slow down the process.

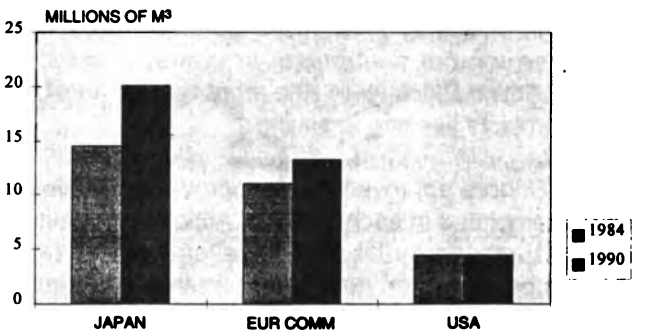
The failure of the plan was due mainly to the attempt to address tropical deforestation from the perspective of industrial countries, ignoring the fundamental causes of destruction: poverty, population growth, and the structural inequalities of the international economic order.

ITTO

The other main international initiative went into effect in 1983, with the creation of the International Tropical Timber Organization (ITTO). Under a ten-year mandate, its main objectives were:

- to enhance the trade of tropical timber.
- to base that trade on sustainably managed forest resources.

Fig. 2. Imports of tropical timber 1984 and 1990 roundwood equivalents.



In this case, tropical countries were members of the organization as "equal" partners: they shared among themselves 50 percent of the votes, according to a formula taking into consideration their forest resources and their exports of tropical timber. The other 50 percent of the votes was distributed among industrial countries, according to their corresponding levels of imports.

Instead of a forum to negotiate policy issues, the organization became a place where projects were also submitted for financing, many of them out of the national TFAPs. Projects were to be prepared by tropical countries and submitted for approval to the Organization. But for a project to be implemented, it would need the financial support of one or more donor (industrial) countries. The activities of ITTO have been in fact controlled unilaterally by industrial countries through the financial resources needed to implement projects.

What is the balance now, after the originally agreed on ten-year life span of the organization has expired?

- It took seven years for ITTO member countries to agree on what sustainable forest management means. Its Guidelines for the Sustainable Management of Natural Tropical Forests was published in December, 1990 (ITTO, 1990). The guidelines for the sustainable management of plantations were published in January of 1993 (ITTO, 1993).

- According to one of ITTO's own studies, less than 1 percent of the forests under industrial production in ITTO member tropical countries were considered to be sustainably managed (POORE, 1989).

The achievement of one of its fundamental objectives fell considerably short of success.

- Tropical timber today faces more obstacles in the international markets, both in number and effectiveness, than when the organization was created. The call for bans and boycotts against tropical timber have become normal and widespread, threatening the stability of the trade.

- Another ITTO study concluded that 90 percent of the revenues from the trade of tropical timber is retained by importers. Only 1 percent finds its way to the country of origin (ITTO,1991).

- Similar proportions of logs, sawnwood and panels were exported in 1980 and in 1990. No significant increase in the level of processing have occurred in tropical countries, and therefore added value and the creation of jobs continue to be exported to industrial countries in similar proportions as ten years ago. The countries which have increased processing significantly during this time, such as Indonesia, did it under national efforts not associated with the ITTO.

- The value of tropical timber continues to fall. In 1990, the value of tropical timber exported to industrial countries was lower than in 1984 when the organization started its operations. The roundwood equivalents of exports to these markets increased from 30 to 38 million cubic meters a year. In real terms, however, the value of each cubic meter exported to industrial countries actually decreased, despite vocal commitments by all ITTO member countries to better value the resource.

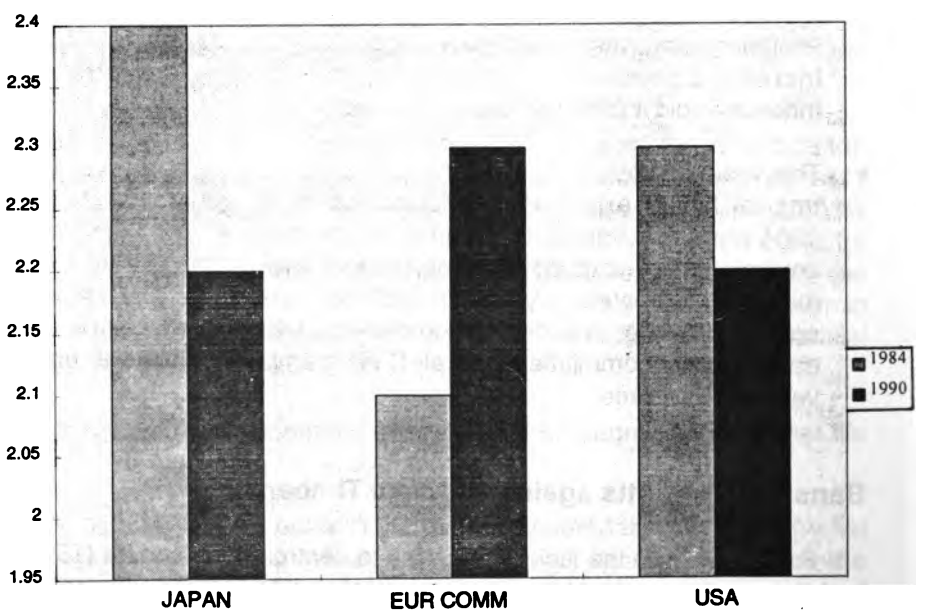
Bans and Boycotts against Tropical Timber

Frustrated over the lack of progress to control deforestation (TFAP) and to base international trade on sustainably managed forests (ITTO), some groups in industrial countries opted for the promotion of boycotts and bans against all trade of tropical timber. In most cases, consumers were led to believe that by refusing to buy tropical timber, they would effectively contribute to saving tropical forests from destruction. Perhaps not accidentally, this provided a convenient smoke-screen to governments in those countries, due to the public perception that something effective was finally being done to control deforestation in the tropics.

As a consequence, legislation demanding that tropical timber be certified as coming from well-managed sources is spreading throughout industrial nations. There are regulations in place in dozens of counties and cities of several European countries, such as Germany, the Netherlands and Austria, limiting the use of tropical timber in public works. Proposals to extend these bans to the entire European Community are under consideration in the European Parliament.

In 1993, the Austrian government approved a regulation to limit the import of tropical timber to sources proven to be sustainably managed.

Fig. 3. Value of tropical timber imports 1984 US$.

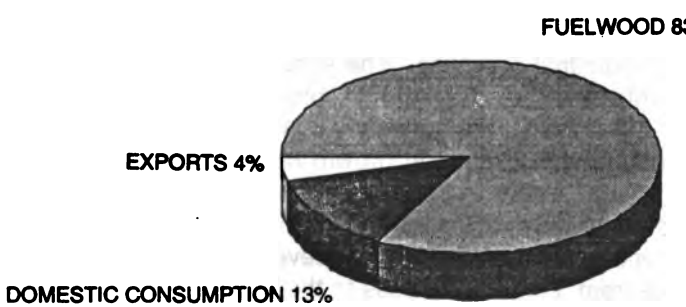


This decision was shortly thereafter overruled, due largely to threats of trade retaliation from developing South East Asian countries. Trade with South East Asia is largely favorable to Austria.

More recently, four different Dutch ministries, in cooperation with the Timber Trade Association, the Trade Union Confederation and major international environmental groups, such as IUCN and WWF, have endorsed a Framework Agreement on Tropical Timber (MINISTRY OF FOREIGN TRADE, etc., 1993). Starting in January of 1996, all imports of tropical timber shall be exclusively limited to supplies guaranteed to be sustainably produced, according to a credible and reliable certificate.

This regulation has the force of a civil law, and applies only to tropical timber, not to timber products coming from other industrial countries, which form the bulk of wood product imports into the Netherlands. The regulation is not only openly discriminatory against tropical timber, it violates existing international trade agreements and is contrary to the international commitments subscribed to by the Ductch government at the ITTO.

Fig. 4. Tropical wood supply, 1990. 1.5 billion m^3.



The production of wood in the tropics is at present in the order of 1500 million cubic meters a year. Over 80 percent is consumed as firewood to supply basic energy needs of over one billion people at or below the edge of poverty. Industrial wood represents less than 20 percent of total production, and 4 percent is exported to international markets. Industrial countries receive two thirds of such exports. In the hypothetical but unlikely case that a full boycott against tropical timber were to come into effect simultaneously in all industrial countries, it would affect

2.5 percent of tropical wood production and 15 percent of the production of industrial timber. Even though industrial practices can and should be substantially improved, it is a misguided assumption that deforestation is a consequence of industrial activities. It's an equally misguided assumption that the elimination of tropical timber exports to industrial countries will stop deforestation in the tropics.

Nevertheless, these campaigns have proliferated, often guided by obscure interests. The number of organizations in industrial countries dedicated to "saving" tropical forests have multiplied. Far too many are led by people who have never been to a tropical forest, or only infrequently as tourists, and have limited technical or political knowledge of the subject. Most fail to understand the process behind deforestation and show little sensitivity for the human tragedy associated with it.

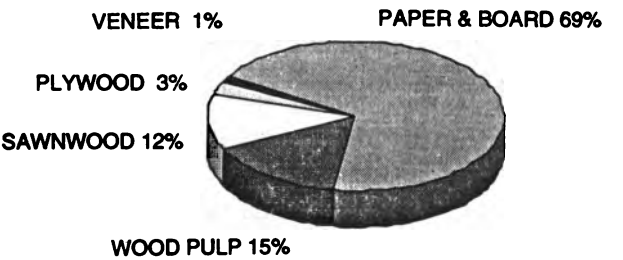
One of the most damaging effects of their activities is the creation of a barrier which prevents the general public in industrial countries from perceiving the true causes of deforestation, the way in which their governments contribute to it, and the ways in which they could effectively assist in curbing the process.

There are other dubious interests behind some of the "save the tropical forests" campaigns in industrial countries. The development of large-scale plantations in the tropics threaten to upset the present balance in the trade of wood products, which now is fundamentally a monopoly of industrial countries. The substantial natural advantages of tropical countries to develop highly competitive plantations are well established. The availability and lower costs of land and labor, plus the significant natural advantages in growth rates, make plantations in the tropics highly competitive in international markets. Such developments are seen as a threat by part of the established industry in northern countries. The consequent obstacles to the development of plantations in the tropics range from curtailing access to the necessary technological and financial resources, to the promotion of pseudo-ecological groups to undermine such projects, normally based on ill-conceived ecological arguments.

The tropics are also an important market for wood products originating in industrial countries. In 1990, such imports exceeded 10 billion dollars, significantly more than all tropical timber exports to the industrial world. Latin American imports from industrial countries are at present in the order of 2 billion dollars a year, mainly in the form of pulp and paper

products. The development of plantations could well substitute for such imports, affecting the interests of present suppliers.

Fig. 5. Latin American imports from industrial countries, 1988.



Source: FAO 1988, own calc.

The management of natural tropical forests for the production of industrial products does not escape such tactics to defend established economic, political and strategic interests. The attempts to sustainably manage natural forests to improve the economic and social well-being of tropical countries are normally curtailed, either directly through obstacles to access to technology and financial resources, or indirectly through the activities of "ecological" groups serving the same interests. Far too often the rights of indigenous communities are manipulated to achieve such objectives.

Certification

Boycotts against tropical timber trade are not only impractical and against established international trade regulations (GATT), but profoundly unfair to those who are attempting to establish sustainable production methods. They discriminate against the needs and interests of the poorest countries of the world, and are a dis-incentive in any attempt to invest in sustainable management of tropical forests.

The growing recognition that tropical forests will be better protected if they play a role in the generation of jobs, income and wealth to the

people there, has led to a favorable attitude to the trade of tropical timber from well-managed sources, and to the consequent need to establish a reliable way to identify such sources.

Certification is perceived as the obvious solution to this conflict. It is an incentive to those who manage forests sustainably, by facilitating access of their products to international markets. It is also a way to raise the awareness of consumers about the environmental implication of their buying practices, and to orient their purchases in favor of environmentally benign activities (SGS-SILVICONSULT, 1993).

One of the first attempts to certification was established in the United Kingdom by Friends of the Earth (FoE), through its Good Wood Program. It was unfortunately oriented to the identification of "good wood" only from the tropics. To do so, FoE unilaterally developed a set of requirements for a piece of timber to be considered "good," without much consultation with the people affected. The program soon failed, due mainly to the lack of consultation in its design and implementation with people in the tropics; to the opposition from the timber industry; to its lack of viability; and to the apathy of the general public.

Soon after, the United Kingdom delegation made a proposal to the ITTO regarding the possibility of certification functioning as an incentive for sustainable management of tropical forests. It was rejected as inviable.

Meanwhile, growing public awareness, mainly in European countries, was slowly making certified timber an attractive commercial product. The few companies who dared request certified timber from their suppliers were soon swarmed by pieces of timber labelled by different certifiers, governments and industries, all according to different standards and using different labels on their products. The proliferation of certifiers and labels only added to the public's confusion. The multiplicity of principles on which they were based, and the lack of reliability of the certifiers themselves, undermined the credibility of the process. Certification was threatened at its outset by the anarchy and confusion caused by the proliferation of unreliable labels, and by the lack of credibility of the certifying organizations.

All parties soon realized that for certification to be viable, it must be based on universally accepted principles leading to a simple and uniform

way of identifying timber coming from well-managed forests, and applied by organizations recognized as capable and independent.

Certification also became a natural consequence of the International Tropical Timber Organization's decision to base the international trade of tropical timber on sustainably-managed sources by the year 2000. Management would sooner or later need to be assessed according to the ITTO guidelines for the sustainable management of production forests in the tropics. These guidelines are meant to facilitate the development of national forest management standards, taking into consideration the characteristics of each country.

The lack of progress in the preparation of national standards according to ITTO's resolutions, and the general character of its guidelines, led the international NGO movement to attempt to develop a set of unified standards applicable on site anywhere in the tropics. This led to the creation of the Forest Stewardship Council (FSC). Through this umbrella NGO organization, a universal set of standards would be defined, applicable to any country in the tropics, and a mechanism to accredit reliable certifiers would be established. By 1992 six different drafts of the FSC's standards for the sustainable management of tropical forests had been prepared.

The FSC soon recognized two fundamental mistakes in its approach:

- It was contributing to discrimination against tropical countries, despite the growing realization that temperate forests were also being mismanaged.
- It was impractical to try to define a set of universal standards applicable anywhere in the tropics. The standards would need to take into consideration the inherent conditions and characteristics of each country or region. A region could be either a part of a country, or a group of countries, depending mainly on natural characteristics and political realities.

This led to a fundamental change in the approach of the NGO movement to the certification of timber products. The FSC was formally established in October, 1993, although its present set of forest management principles is still open to negotiations. Once they are finalized, national standards are expected to be developed for each country or region.

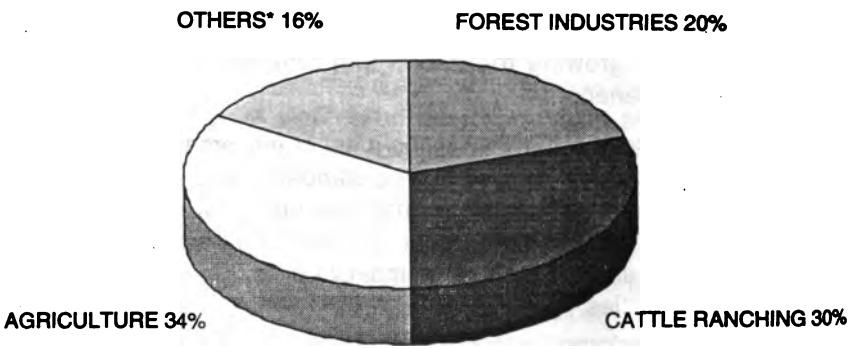
There is a convergence in the approach taken by the ITTO and the FSC to certification. Both lead toward the establishment of national standards of forest management. The main difference still remaining the FSC approach in principle encompasses all forests, all countries, all wood products, and both local and international markets. While the ITTO guidelines refer only to the international markets of tropical timber, defined as logs, sawnwood, veneer and plywood.

PRESENT SITUATION

Tropical Forests

In the eight countries of the Amazon Cooperation Treaty, over 60 percent of the deforestation registered in the 1980s was due to the expansion of the agricultural frontier, and only 20 percent can be directly or indirectly traced back to the activities of the forest industry (CENTENO, 1993). The expansion of the agricultural frontier is due mainly to landless peasants who practice survival agriculture. Deforestation is directly related to the growing number of people in poverty, and to the demands they impose on the environment.

Fig. 6. Causes of deforestation in the Amazon countries, 1980-1990 (51.4 million hectares).



* ***Dams, roads, mining, urbanism others.***

At present, the main economic value associated with forests is the production of industrial timber. Latin America produces about 110 million cubic meters of industrial timber a year (FAO 1988a), with a value of

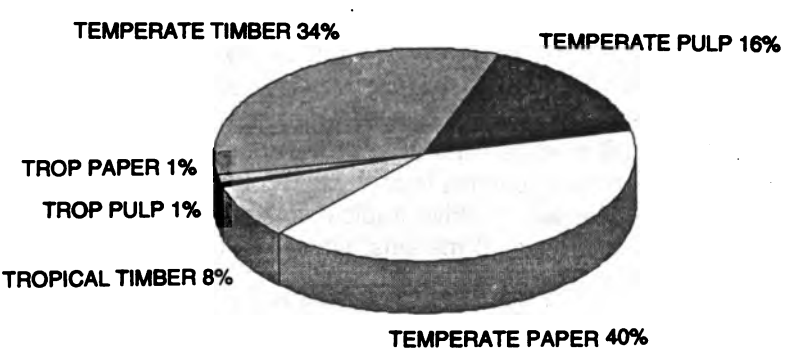
approximately 10 billion dollars a year as raw material. Over 80 percent is for local consumption.

Industrial timber is closely associated to unsustainable production methods. In Peru over 80 percent of supplies can be traced back to the expansion of the agricultural frontier. In Venezuela, despite its small rural population (15%) and relatively high per capita income, only half of industrial timber production comes from forests under any form of management. The situation of other countries in the region ranges within these extremes.

The price of timber in most Latin American countries is the cost of cutting the trees down and dragging the logs to the nearest road. The total volume produced under such circumstances is so large, in comparison to the volume coming from forests under any form of management, that it depresses the average price in the market. This becomes a powerful dis-incentive to the investments necessary to manage forests sustainably, and the effort in general.

Nevertheless, Latin American countries, as well as other members of the ITTO, have made the collective commitment that by the year 2000 tropical timber in international trade should come from sustainably-managed forests.

Fig. 7. International trade of industrial wood products, 1990 (90 million dollars, exports).



Most governments, industries and NGOs in industrial countries have welcomed the efforts to establish a reliable and uniform mechanism to certify tropical timber. Tropical countries, on the other hand, have not

only verbally endorsed the year 2000 target, but have made this commitment an integral part of the new International Tropical Timber Agreement negotiated through the United Nations Conference for Trade and Development (UNCTAD) —entering into effect this year. Some tropical countries, such as Indonesia, Malaysia and Brazil, are already actively developing national standards.

During the renegotiations of the ITTA in Geneva in 1993 and early '94, industrial nations insisted that tropical countries should accept making the year 2000 target an integral part of the new agreement. Tropical countries not only accepted the proposal, but suggested that the commitment should be extended to the forests of industrial countries as well. Tropical timber represent less than 10 percent of the international trade of wood products. In order to avoid discrimination and double standards, all countries should manage their forests sustainably, according to internationally accepted principles.

Industrial countries refused to make such a commitment, arguing that ITTO was not the proper forum, and that there was no need for them to do so, since their forests are not only well-managed, but growing in size.

At the Ministerial Conference on European Forests, held in Helsinki in May of 1993, European countries declined a proposal by the government of the Netherlands to endorse the same commitment they had pressed tropical countries into making: to base the international trade of timber products on forests proved to be well-managed, according to internationally agreed upon principles.

Industrial countries seem comfortable applying double standards and refusing their international responsibilities to sustainably manage their own forests, based on arguments with very limited credibility. Certification could thus be used as a new barrier to trade, applied discriminatorily to products coming from tropical countries only. It may also become an effective way to drive tropical timber from selected sources out of the main international markets, whenever commercially or politically convenient.

Temperate Forests

Governments and NGOs from industrial countries are keen to highlight to their constituencies the tragedy of deforestation in the tropics, and the

irresponsibility with which tropical countries handle the subject. They are less keen to emphasize what's going on in their own backyard.

Forest management in several industrial countries is far from sustainable or environmentally benign. Over 80 percent of the international trade of wood products comes from industrial countries. Most of the forests from which these products come from have little similarity with the original, natural forests there. They are closer to monoculture plantations where biodiversity has been severely depleted and where biological processes have been drastically simplified in favor of short-term economic returns.

The industrial countries often brand Malaysia, Indonesia and Brazil as the world's "environmental villains," mainly due to their reported levels of natural forests destruction. But despite the levels of deforestation registered in these countries, over 60 percent of their territories are still covered by natural, tropical forests,among the most precious of all forests left on Earth.

The natural forest cover of the United Kingdom, on the other hand, extends over only 1 percent of the national surface, and is fragmented to such a extent that only small remnants of old-growth forests remain. The total forest surface of the UK is only 10 percent of the country. Most is plantations of monocultures, dramatically poor in biodiversity when compared with what was there originally.

A similar situation is registered in other European countries. Only 6 percent of Ireland is covered by forests, 12 percent of Denmark and 10 percent of the Netherlands. Most is monoculture plantations, heavily transformed and manipulated by man. Only relics of these countries' unique and rich original forests remain. The total forest surface of the European Community covers 23 percent of the surface area. But what could be considered old-growth has been reduced to less than 2 percent of the territory. The original forest cover has been converted into agricultural lands or into even-aged tree plantations, of one or a few species. The original biodiversity has been severely depleted.

Finland and Sweden are among the largest timber exporters in the world. Forests cover over 60 of both countries' territory. But old-growth forests have been reduced to 1 percent of the surface area, and is fragmented into small patches and still under attack by "development" projects.

In the United States of America, excluding Alaska, natural, old-growth forests have been reduced to less than 5 percent of the surface area, despite the fact that the total forest surface extends over one third of national territory. In Canada, ecologically diverse natural forests are quickly disappearing, opening room for monoculture plantations, which are considered more economically profitable.

Furthermore, about one third of all forests in Western Europe have been reported to be either dead or dying due to the combined effects of air pollution, acid rain and ozone contamination. Acid rain is also causing extensive damage to forests in the United States. This can hardly be considered sustainable forest management.

The destruction or degradation of forests due to acid rain and air pollution is no more acceptable than deforestation in the tropics due to poverty and population growth. The dramatic depletion of the biodiversity of temperate forests, through the substitution of old growth forest by agricultural lands or the cultivation of even aged tree plantations, is no more acceptable than the depletion of biodiversity in the tropics through the mismanagement of forests for the production of industrial timber.

Tropical countries are among the poorest countries of the world. They must also manage the most complex, difficult, and delicate forests remaining on Earth with very limited economic and technological resources. They must simultaneously deal with a dramatic social and economic situation, making the possibility of reaching sustainable models of development a distant reality. Nevertheless, they have been willing to make formal commitments to sustainably manage their forests in the immediate future. They have approved a set of guidelines, previously negotiated with industrial countries, by which sustainability will be assessed.

It is thus inconceivable and unacceptable that industrial countries should refuse to make a similar commitment to the international community, despite the overwhelmingly larger quantity and quality of technological and economic resources at their disposal, and to the far simpler nature of their already depleted and transformed forest resources. The double standards applied by most governments and NGOs of industrial countries is contrary to basic principles of equity and morality.

The position of industrial countries is even less justified when it is considered that these countries often end up contributing to the destruc-

tion of the remaining tropical rain forests. Their economic and political strategies are directly related to the increase of poverty in the tropics; to the dramatic collapse in the price of the raw materials on which the economies of tropical countries depend; and to the difficulties encountered by tropical countries in diversifying their economies and having access to less-polluting and more efficient production technologies.

Temperate Countries and Tropical Deforestation

It's often highlighted as a major world tragedy that some 30 hectares of tropical forests are lost each minute. But forests are but one of the many natural resources which are being depleted in the tropics at alarming rates. Furthermore, the ecological instability taking place there is accompanied by a social tragedy of even more awesome proportions. According to UNICEF (UNICEF, 1990), about 10 million children under five years of age die every year in the tropics, 20 each minute, victims of easily curable deceases, such as diarrhea, chronic coughs, tetanus, malaria or small pox. It would take only a few cents to save each life, but such levels of wealth are beyond the reach of large sector of the population. And this is but one of the many indicators of the deprivation in which people are forced to live in the tropics. Millions more die each year of malnutrition, hunger and thirst.

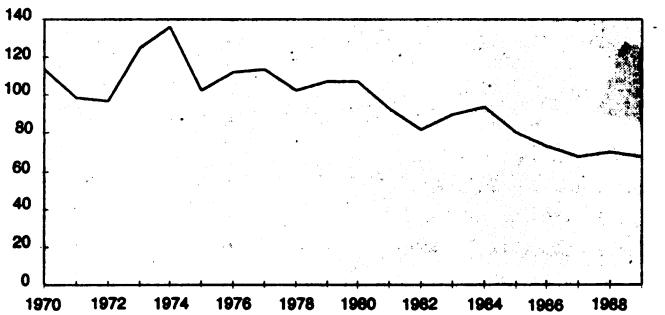
The economies of most tropical countries are based on the export of raw, natural resources. In 1988, they represented 90 percent of all exports from Ecuador, Bolivia and Venezuela, and about 80 percent of exports from Peru and Colombia. In Brazil, where a moderate industrial infrastructure has been developed, over 50 percent of all exports are accounted for by raw materials (CENTENO, 1993).

One of the main objectives of the "structural adjustment programs" imposed by international financial organizations (i.e., industrial countries) is to expand exports, which in practice means to expand exports of raw materials. Tropical forests cover over 50 percent of many of national territory of many of these countries, and they contain a multiplicity of riches beyond timber and biodiversity: strategic minerals, iron ore, bauxite, gold, oil, land for agriculture, hydroelectric energy, and many other forms of economic wealth.

One of the structural characteristics of the international economic order, designed and controlled by industrial nations, is that the price of

raw materials must systematically deteriorate. Over the last 20 years it has fallen to half its value. Today it is necessary to export more than twice what was exported 20 years ago in order to receive the same income.

Fig. 8. Terms of trade, 1979-1981 = 100 non-oil primary products.



Sources: World Bank 1988.

But today, such an income must not only be shared by a lot more people than 20 years ago, but over 40 percent of the income from the growing exports of raw materials from Latin America must be returned to industrial countries as payment for the external debt. So, despite the enormous increase in the amount of exports over the same period, people in the tropics are not only a lot poorer today, but they are also under such financial stress that the present generation and their children are heavily in debt. The increase in poverty levels leads to an increase in the rate of population growth, setting off a vicious cycle of social and environmental degradation.

It is well known that the stability of the forestry sector is closely related to the stability of the agricultural sector. But the prices of most agricultural products from the tropics have also collapsed —from coffee to sugar and from cocoa to natural rubber. The collapse in the price of coffee has seriously affected the economies of several Latin American countries.

Another of the region's main agricultural exports is bananas, one of the main sources of income of countries such as Ecuador, Colombia, Costa Rica, Honduras, Panama and Nicaragua. Latin American bananas had slowly and painfully carved out a niche in the international market. Then one of its main markets, the European Community, makes the unilateral and discriminatory decision to favor imports from

their ex-colonies in the tropics, to establish arbitrary quotas to imports from Latin America, and to apply tariffs as high as US$940 per ton. Many farmers lost their already precarious means of livelihood. The coffee and banana farms which went out of business seem to have been largely converted to a more profitable although risky business: planting coca.

The instability of the agricultural sector in Latin America is also directly related to the huge subsidies assigned to the agricultural production of the European Community, the USA and other industrial countries, and to the instability of prices caused by their arbitrary dumping of products in the international markets.

One of the most basic needs of people anywhere is food. This translates mainly into agricultural products. To feed a growing population, with a growing demand per person, it's unavoidable that most Latin American countries need to expand the surface area dedicated to food production. The agricultural frontier has indeed expanded, mainly at the expense of forests. In 1970, a total of 145 million hectares were dedicated to crops in Latin America and 530 million ha to cattle ranching. By 1985, these figures had increased to 180 million and 560 million ha, respectively, for a total expansion of 65 million hectares. During the same period, the forest surface was reduced from 1040 million hectares in 1975 to 973 million in 1985, a loss of 67 million hectares (FAO, 1988).

Almost all agricultural production is for local consumption. Between 1982 and 1986 Latin America exported an average of 34 billion dollars a year in agricultural products, one fifth of the value of production. In fact, imports accounted for almost half of food consumption in Venezuela in 1988, 30 percent in Peru and 15 percent in Colombia, Bolivia and Ecuador (CENTENO, 1993).

Average production per unit of area is only a fraction of the proven potential of most of these lands. But the possibilities of increasing yields is closely related to access to financial resources, irrigation, equipment and technologies, normally beyond the reach of most agricultural producers. Between 1960 and 1985 the increment in agricultural production in Latin America was due in about 40 percent to improvements in yields and the intensification of crops, and in about 60 percent to the expansion of the cultivated surface (FAO, 1988). The tendency is towards the continued expansion of agricultural lands, mainly at the expense of forests.

The prospects for tropical countries to reduce their dependence on raw material export is also seriously curtailed by the lack of access to the necessary financial and technological resources to produce semi-finished or finished goods. Tropical countries are forced not only to maintain their dependence on the extraction of raw materials, but to do so with a growing population, falling prices, and a mounting foreign debt. The consequence is a considerable expansion in the exploitation of their natural resources, using obsolete, wasteful and polluting technologies.

The collapse in the prices of raw materials has proved to be one of the greatest contradictions in the policies of industrial countries to "save" tropical forests from destruction. On the one hand they express verbal concern for the fate of these forests, while on the other, more pragmatic end, they maintain and stimulate an economic order profoundly unfair to developing countries, consistently devaluing their natural assets and the value of their labor. Industrial countries end up creating a chain of effect, from poverty to environmental degradation, which contributes to the destruction of forests and other natural resources in the tropics, threatening their own and everybody else's survival.

TENDENCIES

The trade of industrial wood products is quickly moving towards a system of certification, according to internationally accepted principles and to standards suited to the conditionalities of each nation. In the case of tropical countries, national standards will be drawn up taking mainly into consideration the ITTO guidelines for the sustainable management of tropical forests, and, to the extent possible, the FSC principles. In the case of temperate countries, the situation is not so clearly defined. National standards may be developed in most instances without formal commitments by governments or industries, driven mainly by NGO pressure and the growing demand of consumers. In the case of tropical forests, the application of national standards tends to be mandatory, due to the formal commitments assumed by those countries at the ITTO. In the case of industrial countries, the application of national standards, if any, tends to be voluntary.

Such differences may seem to place tropical countries at a disadvantage. This may only be true on the short term. The overwhelming importance of sustainable forest management for the production of

industrial products will eventually play in their favor. The growing public awareness in both industrial and tropical countries about the degradation to which temperate forests have been subject, tends to create a generalized public demand for certification of all wood products on the market, regardless of their geographical origin.

The main questions now are:

- Who will be accredited to apply national standards, to assess whether or not a particular forest is, or is not, being managed accordingly?
- What will be the practical, economic and legal implications of the application of those standards?
- How will the products be traced, from the forest to the markets, for the labelling of products to have an acceptable degree of legitimacy?

Who Should be the Certifiers?

All known certifiers today are from industrial countries, and almost all dedicate themselves wholly or partly to activities in tropical countries, according to rules written by themselves. Some pretend to become "multinationals" of the certification business. In most cases, and despite the overwhelming attention to tropical countries, there is little to no participation of experts from these regions in such organizations.

Nevertheless, there is growing awareness among tropical countries that they must control the certification process in their own countries themselves, that appropriate certification organizations should be set up in their countries to undertake this responsibility in an unbiased manner. And that for certification organizations to be legitimate, they must abide by certain rules, and be accredited by an objective and representative body. Only then will they earn the trust of consumers and achieve market credibility.

Certifiers should be objective, independent and have suitable infrastructure and human resources to carry out their responsibilities with an acceptable degree of precision and credibility. They should preferably be structured according to guidelines already established by the International Standards Organization, ISO, for certifying organizations,

such as the European Norm EN 45011. Should this be the case, accreditation would take place within a national regulatory framework, would be established under a common set of rules, and would facilitate trade through the international recognition of different certification programs.

A certification organization should include (SGS-SILVICONSULT, 1993):

- **A governing board**, composed of representatives of all parties involved in the certification process, such as industry, the national forestry service, conservation groups and other non-governmental organizations, academics, researchers, and community representatives. No single interest should predominate.

- **The certification body** itself, impartial and independent from those who have a direct commercial interest in the certification process.

- **The standards** against which forest management will be assessed. This would normally be the national standards for the country in question. National standards should be developed through a cooperative effort involving the same groups of stakeholders which conform the governing body.

- **An external auditing system,** of the financial and technical operations undertaken by the organization.

It is normal practice in business to undertake a financial audit of operations every fiscal year. The auditors must be accredited to carry out such operations, and they must follow universally established methods. Their credibility is related to the thoroughness of their work, and to the level of independence from the organization or business being audited.

The certification of forest management operations is basically an auditing procedure, based on universally accepted principles, taking into account environmental, social and economic factors. It is expected that it will become as common and acceptable as financial audits.

Impiications of Certification

At present a very large proportion of the production of industrial timber in Latin American countries comes from forests without any form of management, from 50 percent in Venezuela to 80 percent in Peru. Most of this production is associated with the expansion of the agricultural frontier or illegal logging. The rest of production, from areas under concessions and subject to management plans, may in the most part have serious difficulties in meeting ITTO guideline requirements, or the FSC principles of sustainable forest management.

Latin America produces as much industrial timber as South East Asia, about 110 million cubic meter a year. But contrary to South East Asia, where exports account for about 40 percent of production, largely in the form of logs, in Latin America about 10 percent is exported under different levels of processing. Logs represent a negligible proportion of total exports.

It may seem, then, that as long as certification is restricted to international markets, the regional effort necessary to meet such requirements is not significant. In fact, the proportion of production reaching the international market is an integral part of total output. It's difficult to make a practical separation between the two markets. Furthermore, the need to base the local market on sustainable management operations is far more important for the maintenance of the resources than the international market.

On the other hand, the commitment made by tropical countries to sustainably manage their forest by the year 2000 is also the commitment of industrial countries. There is an inherent obligation on their part to assist tropical countries to reach that objective.

It is widely recognized that sustainable forest management is associated with the degree of transformation of the raw material (logs) in the country of origin. The need to produce and export finished or semi-finished products, create jobs and retain added value, is embedded in the ITTO objectives. Further processing is associated with industrial development, which in turns is tied to access to technological and financial resources. Industrial development can only take place if there is unobstructed access to the main international markets, and depends on the availability of an adequate infrastructure of roads, ports, energy sources and of a trained labor force. Sustainable forest management is thus

associated to a chain of requirements which needs to be considered in national forestry development plans, as well as in the position of tropical countries in international negotiations.

One of the most quoted concerns about certification is its cost, and the degree to which it's recognized as part of the price of the products in the markets. All practical indications are, however, that for middle to large producers in the region certification represents a minor proportion of the commercial value of the raw timber produced. At the higher end of the spectrum, the cost of a certification operation may be in the order of US$ 50 000. This represents from 1 percnet to 10 percent of the yearly production costs[47] of average industrial operations in the region, ranging from 10 000 to 50 000 m^3 of roundwood a year. When compared to the market price of the product, the cost of certification would tend to range between 0.5 percent and 4 percent of the commercial value of log production.

All seems to indicate that price changes due to certification ranging between 10 percent and 15 percent could be transferred to the market in return for the supply of timber proven to originate in forests managed according to internationally recognized standards.

For smaller producers, the cost may represent a larger and possibly prohibiting proportion of the cost of production. For these cases, a system of subsidies or aid would need to be established, including a reduction in costs and the simplification of the certification operation itself.

Certification and Eco-Labelling

Certification would apply to forest management, and not to the products in the market. The labelling of products becomes an additional operation, which may have different implications. A label could simply attest that a particular product comes from a forest which has been certified as sustainably managed, or it could be an eco-label, with much wider implications, where the processes of manufacturing, transportation, use, and disposal are also taken into account as ecologically sound.

47. Estimated at US$50 per m^3 FOB at present average costs of infrastructure, equipment, labor, royalties, transportation and management.

In the long run, the tendency seems to be for all wood products to be eco-labelled as environmentally sound, taking into account their full life cycle, from the forest to their disposal after use. In the short run, however, the tendency is to focus on the certification of forest operations, according to universally agreed upon standards, and the labelling of products as coming from those forests.

CONCLUSIONS AND RECOMMENDATIONS

One of the fundamental needs in Latin America is to harmonize policies in order to strengthen positions at international negotiations. The need to speak with a common voice is basic to being able to better negotiate the required balance between environmental concerns and social justice in the international arena.

The forest heritage of the region, and in particular the Amazon forests, play a key role in any international negotiations on forests. About 60 percent of the greater Amazon forest is located in Brazil. The remaining 40 percent is found in the other countries of the Amazon Cooperation Treaty. However, during ten years of negotiations within ITTO, there has not been a single case where these countries unified their positions as a block. There is an urgent need to improve diplomatic ties in order to make better use of the political and strategic importance of common positions in international negotiations. The same observation applies to other groups of countries, such as to the members of the Acuerdo de Cartagena (Andean Pact), to Central American countries, or to the region as a whole.

Equally important is to strengthen communication and cooperation links with other tropical regions, in particular with the members of the Association of South East Asian Nations (ASEAN).

The discrimination that has been created in the international markets against tropical timber must be eradicated. Not only because it's inequitable for industrial nations to demand that those countries with the most limitations comply with standards they don't want to apply to themselves, but also because it creates the impression in their own public that something effective is been done to curb the tragedy of deforestation in the tropics.

Certification must be independent and apply equally to all forests, be they tropical, temperate or boreal. Labelling must also apply equally to all timber products, independent of their geographical origin or their level of processing. Labelling must not be restricted to logs or sawnwood. It must apply to all timber products, including pulp, paper and furniture —the bulk of the international trade of forest products.

One of the immediate priorities is for Latin American countries to develop national standards against which the degree of sustainability of forest management would be assessed. Such standards should be based on the guidelines for the sustainable management of tropical forests approved by the International Tropical Timber Organization. They should also take into consideration, to the extent possible, the principles and criteria for sustainable forest management of the Forest Stewardship Council. Separate standards should be developed for natural forests and plantations.

It would be convenient to develop standards common to groups of countries, such as the signatories of the Amazon Cooperation Treaty, or the Central American countries. This would facilitate intraregional trade and strengthen their position in international negotiations.

Simultaneously, Latin American countries should proceed to establish their own certification organizations, preferably following international guidelines such as those of the International Standards Organization (ISO).

The certification process should be seen from the outset as more than a mechanism to measure the degree of compliance of individual forest operations with approved standards. Certification can also play a fundamental role in identifying the reason for the lack of compliance with such standards. Such a diagnosis would facilitate the design of assistance plans to the forest industry to overcome shortcomings. It would also serve to negotiate international assistance to the sector, and to orient positions within ITTO and the possible World Commission on Forests and Sustainable Development.

For forest management to be sustainable, a balance between three fundamental principles must be carefully achieved in national standards. Forest management must be:

- environmentally friendly.
- socially beneficial.
- economically profitable.

There is an unfortunate tendency in the FSC approach to minimize the importance of economic viability in its principles of forest management, despite the fact that a call for a balance between these three sectors is enshrined in its own statutes. This is perhaps due to the overwhelming domination of the points of view of northern environmental groups in the definition of the FSC principles to date. With the recent incorporation of industry into the board of directors of this organization, an appropriate recognition of the importance of the economic variable to achieve sustainable forest management is expected.

Economic viability must ensure:

- An appropriate valuation of the forest resource, beyond present practices which only values the cost of extraction. This should include the global environmental benefits tropical forests provide.
- The internalization of all costs, including social and environmental costs.
- The necessary reinvestment in infrastructure, human resources, inventories, treatments, research and equipment to maintain productivity.
- Fair prices for the products in the marketplace.

Economic viability is also related to the increase of processing in the country of origin, in order to allow local societies to benefit from the creation of jobs and the retainment of added value. Further processing is in turn related to industrial development, as well as to access to technology, financial resources and to the main international markets. Sustainable forest management is therefore conditional to fundamental changes in the established system of relationships between industrial and tropical countries. This should be reflected in the negotiating positions of the region on the subject.

Economic viability is a fundamental condition for achieving sustainable forest management. But forest management must also be environmentally benign to maintain the productivity of the forest, its biodiversity and its main ecological processes. Societies also have the right to benefit from the potential of these resources to provide goods, services, jobs and overall economic and social well-being, on a sustainable basis, for the benefit of present and future generations.

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IMPROVING THE EFFECTIVENESS OF INTERNATIONAL COOPERATION FOR SUSTAINABLE DEVELOPMENT IN LATIN AMERICA: THE FORESTRY CASE

Ronnie de Camino
Alicia Bárcena

INTRODUCTION

This paper suggests actions to increase the effectiveness of international cooperation for sustainable development, both bilateral and multilateral. The emphasis is on the Latin American region and on issues related to the forestry sector.

Donor and recipient countries often have different opinions about the relative advantages of bilateral and multilateral assistance. In the last ten years, bilateral assistance has played a more important funding role than that of multilateral cooperation. Bilateral international assistance represents almost 75 percent of official development assistance (ODA) and its importance is increasing. However, due to the magnitude of the problems and the different interests involved, both types of assistance complement each other.

The need for coordinating international assistance acquired greater importance after the United Nations Conference on Environment and Development (UNCED, also known as the Earth Summit), which took place in Rio de Janeiro in June 1992. World expectations were raised that governments had finally begun to take seriously the environmental and development crises. At the Conference, the sustainable development concept, initially put forward by the Brundtland Commission in 1984, was adopted by more than 180 Governments and 120 Heads of State and was translated into specific agreements aimed at changing development patterns and strategies.

The concept of sustainable development found expression in five basic agreements: i) the Rio Declaration, which contains 27 principles aimed at generating the political will needed to effectively reorient development models; ii) Agenda 21, which constituted a far-reaching and comprehensive program of action with four sections, 40 chapters and

115 programs and is the first program of action ever negotiated internationally; iii) Convention on Biological Diversity; iv) a Convention on Climate Change, and v) a Declaration of Principles on the Management, Conservation, and Sustainable Development of Forests.

During the late 1980s, increasing knowledge about tropical deforestation rates (around 50% during the present decade) and awareness of the poor performance of both the International Tropical Timber Organization (ITTO) and the Tropical Forestry Action Plan (TFAP) underlined the need for a new institutional approach and a more effective framework for international cooperation. This need also stemmed from purely political considerations and from an attempt to reduce North-South differences. It was also clear that there was a need to address the poor condition of forest management throughout the temperate world. The idea of a Global Forest Agreement was first put forward during an independent review of the TFAP in 1990, and it was raised again during the G7 meeting that took place the same year (Sullivan, F. 1993). The idea was further elaborated by the FAO, the organization that produced a draft Forest Convention. Terms of this Convention were expected to be negotiated during the UNCED and signed at the Earth Summit in Rio. However, in that occasion, developing countries were not willing to endorse the Convention. Developing countries argued that the Convention put too much emphasis on tropical forests and did not do enough to ensure a balanced development between tropical and temperate areas. As a result, the Forest Convention was replaced by a Non-Binding Authoritative Statement which included various principles on management, conservation, and sustainable development affecting all types of forest.

It is important to review the international response to this initiative. There is an urgent need to improve effectiveness in international cooperation, as well as to develop an effective combination of regulatory measures, support packages and incentives to ensure sustainable development. These instruments need to be utilized at the international as well as national level.

FORESTRY AND SUSTAINABLE DEVELOPMENT: IMPLICATIONS FOR ACTION

The Scope of Sustainable Development

This paper is based on the concept of sustainable development as applied to forestry. We do not view sustainable development simply as a concept which is currently popular, but rather as a framework for changing attitudes and organizations at all levels. Policies are often based on value judgments, and here we assume that there is a general willingness in society to achieve sustainable development. We wish to consider sustainability not only as a consensus which would avoid discussion, but as a new pattern of behavior, based on common wisdom and supported by the political will of the constituencies involved.

We will not attempt to define sustainable development. However, we would like to offer some concepts related to factors which may contribute to achieving sustainable development:

- Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs (WCED, 1987).

- Sustainable development involves changes in the production and/or distribution of goods and services, which result, for a given target population, in welfare increases which can be sustained over time (Gregersen, H. and Lundgren, A., 1990).

There also are some attempts at translating these concepts into operational terms:

- Sustainable development is development that pays for the full cost of depleting resources: it charges itself a user cost; when it despoils the environment, it charges itself an environmental cost that fully covers the damage (at the margin); it receives no subsidy, except in proportion to the positive externalities that it generates. It is only by inextricably internalizing the conservation of resources, the protection of the environment and the provision of environmental and social infrastructure to the very economic activities and actions that place demand on these resources, that genuine development can be attained and sustained (Panayotou, 1994).

- Agricultural and natural resource sustainability refers to the use of biophysical, economic, social and institutional resources according to their capacity in a certain geographic area to obtain, through the use of biophysical, economic, social and institutional technologies, direct and indirect goods and services from agriculture and natural resources and meet the needs of present and future generations. The present value of goods and services must be higher than the value of externalities and inputs by improving, or at least maintaining indefinitely, the future productivity of the biophysical and social environment. The present value of the flow must also be equitably distributed among the participants in the process (de Camino, R. and S. MÅller, 1993).

It is necessary to emphasize that the most important sustainable development concept is its human dimension, as opposed to resource protection considerations which were so popular with bilateral agencies and the NGO community, or to the merely economic efficiency objective which has been promoted by multilateral agencies. Sustainable development embodies economic efficiency, social equity and ecological sustainability objectives.

Countries need a new focus for multi —and bilateral— assistance to achieve progress, not only towards economic growth, but also towards sustainable development.

Implications for Action

Sustainable development is not an esoteric concept (the failure of many past initiatives may have been rooted in the attempt to define projects in a very idealistic manner, trying to meet requisites that could not be fulfilled). An example is the concept of sustainable forest management, which must be understood as a process, and not as a precondition. In the real world sustainable forest management takes a long time to achieve, as shown by the experience of tropical forest management for commercial purposes in Quintana Roo (Janka, H. and Lobato, R., 1994).

We have adopted the following selected "basic and practical principles which are needed to guide the work related to the sustainability of development projects" (Gregersen, H. and Lundgren, A. 1990) :

- An operational focus on avoiding non-sustainable development.

- In considering sustainability issues, recognize that there is, and there will be, major areas of uncertainty that can only be tackled by introducing more flexibility in the design of projects and policies. Sustainability can be imagined as a triangle whose sides are the economy, equity and ecology (Nijkamp, 1990). Once you know where you are, it's possible to move to a better position through a process that will necessarily consume time.

Important attitudes which are necessary to effectively deal with environment and natural resources issues are defined by Myers (1990):

- The environment and natural resources are valid sectors of development.

- The approach to natural resource systems should not be defined and perceived in terms of constraints to development.

- The problem is not to find the best way to safeguard environment and natural resources, but the best way to achieve (sustainable) productive (multiple, multifunctional) use —indeed, expanded use— of the natural resources of a region.

Myers' approach is the one we would like to see implemented by international assistance agencies operating in Latin America, an approach that would take global, national and local objectives into account and not only those of the global community.

The Agenda 21 Program (Earth Council/IICA, 1993) also provides a number of guiding concepts for the activities of bilateral and multilateral assistance agencies: There is a need to:

- Be clear about the economic and social dimensions of the problem.

- Define the role of management and conservation of natural resources.

- Support the main actors involved in the process (especially, at the local and national level).

- Define the operational tools to promote sustainable development.

As Panayotou (1994) mentioned, "sustainable development and the strategies and programs of Agenda 21 are neither luxuries nor options; they are imperatives of growing importance and urgency."

RESPONDING TO THE NEEDS OF SUSTAINABLE DEVELOPMENT: THE ROLE OF INTERNATIONAL AGENCIES

Changing the Role of International Development Cooperation

International cooperation is broadly defined as assistance provided to support a given program, and including a package of interrelated actions. It encompasses a range of technical assistance activities designed to develop human resources through better skills, knowledge, technical know-how and productivity in a developing country. A particularly important objective of international cooperation is the development of human resources as a prerequisite for institution-building. Capacity building for improved policy analysis and management is, and will continue to be, of importance.

For more than thirty years, technical cooperation has been an essential part of international assistance. Technical cooperation has been one of the main tools of official development assistance.

The main components of international technical assistance are training, provision of expatriate and national experts, policy and technical advice, assistance in the preparation of surveys and studies, contributions to research and scientific and technological development.

Four major categories of international cooperation have been identified:

1. Program assistance for general development purposes, i.e. balance of payments financing, general budgetary support and commodity assistance. An example is the structural adjustment assistance provided by the World Bank and the IMF.

2. Program assistance aimed at specific sectors, such as agriculture, forestry, transportation, education and community development. The World Bank and regional bank sector adjustment loans are included here.

3. Food aid for disaster relief and technical cooperation supported by various bilateral assistance agencies.

4. Debt relief.

International cooperation has had many positive and negative impacts on the development and growth of developing countries (Casse, R., 1990). Without exception, the recipient country plays a central role. International cooperation can only be as effective as the policies and the institutional structures of the recipient country. International cooperation aims at strengthening these policies and structures. When donor policies are adequate, and when an appropriate policy framework exists in the recipient country, international assistance will likely have a positive effect.

The World Bank and the International Monetary Fund (IMF) are special cases. Initially, the main mission of the International Monetary Fund was to stabilize monetary systems. After 1970, the IMF changed its focus and concentrated on providing developing countries with long term assistance and advice, thus having considerable overlap with the World Bank. After Bretton Woods, the World Bank had the main objective of promoting long-term economic growth and development. After 1950, it mainly concentrated on lending for infrastructure projects. In the past 20 years, the World Bank has expanded its activities to broaden its sectoral coverage and has become highly involved in almost every aspect of investment policy and technical assistance for structural adjustment in developing countries. In many countries, IMF and World Bank disbursements have represented a significant proportion of total national investment, and both institutions have played a key role in reorienting macroeconomic policies, thus having important effects on the economy and society of developing nations. The Bank has contributed, and is increasingly contributing, to the policy dialogue and policy reform process.

However, an important proportion of the development assistance provided was targeted to emergencies and had little or no impact on sustained growth and development or, at most, had positive impacts in the long-run only. In the past 20 years, development assistance from

the Bretton Woods Institutions has contributed to production increases, such as in the case of the green revolution. However, in some cases, sideeffects were quite negative. In this context, multilateral assistance, in general, can be characterized as (Cassen, R., 1990):

- Not being as politicized as bilateral assistance.
- Employing more transparent approval methods.
- Assuming mobilizing of co-financing from the recipient country.
- Having a more significant (hopefully positive) impact on the economy, environment and equity of the recipient country.
- Being implemented by agencies with considerable regional and technical experience, not always available in many bilateral agencies.
- Serving as channels for many small donors with limited regional or technical experience or administrative capacity.

However, it's clear that development assistance should be more efficient and effective. Multilateral development institutions, particularly the World Bank and the regional banks, should eliminate unnecessary overlaps and cooperate and rely more on each other. Banks should play a more active role in mobilizing resources, particularly from the private sector. The multilateral development banks should accord more importance to aid coordination, including bilateral assistance programs.

The key question is how international agencies can best contribute to sustainable development in Latin America and, more precisely, how they can enhance the contribution of forestry to sustainable development. In the past, action has been focused on projects. However, the linkages between forestry activities and sustainable development must also be examined at the policy level. Many international assistance agencies are now giving more emphasis to the policy arena. We welcome this trend.

Dealing with Sustainable Development Issues at the Agency Level

Most discussions on sustainable development take place at the policy level, quite often in an international context. Little attention is paid to operational issues at the agency or project level or to the knowledge that already exists in countries or communities. This is to be expected, since the concept of sustainable development is frequently used to serve political interests. Thus, operationalizing the concept becomes both a necessity and a challenge.

To give sustainable development an operational content we must look for technology that is "environmentally and natural resource friendly," as well as internalize externalities.

We face two demands. First, we must be explicit about the context of sustainable development. This implies answering the question: What are we sustaining and for whom? Second, we must find an acceptable way of dealing operationally with the future. Since we cannot know whether we are in fact on a path to sustainable development, flexibility is needed. In the following sections of this document we will examine these requirements

Sustaining What and for Whom?

Environmental NGOs criticize international agencies for not paying enough attention to sustainable development issues in planning, managing and implementing forestry development projects and policies. This criticism relates to the question above. In answering the question international and bilateral agencies need to consider the views of governments, the local NGOs and especially, of direct beneficiaries.

Agencies need to be explicit in answering this question. They have to be sensitive to issues related to the continuity of benefits over time (future generations have to be part of the answer to the "for whom" question) and must consider the diffusion of benefits beyond narrow project boundaries (i.e., be sensitive to non-project beneficiaries and the need for broad based development). They should also consider the possibility of countries and local communities being compensated for the direct and indirect, local and global benefits generated. In reality, agen-

cies have been slow in changing their modus operandi and satisfying the demands of sustainable development. In part, this is because sustainable development has yet to be defined in operational terms. This is a serious problem when it comes to policy reform and adjustment at the project level, when specificity is necessary.

Also, in answering the "for whom" question, agencies should be aware that the focus must be on direct beneficiaries and recipient countries that have the responsibility for paying debts. If the "for whom" question concerned a wider, global group of beneficiaries, there is a need to define the "who pays" and "how much" questions related to the global benefits involved.

Dealing with Uncertainty

As mentioned, we cannot predict the future accurately. Therefore, we need to find some way of judging whether we are actually progressing towards sustainable development. We would argue that a practical way of achieving this would be by simply avoiding non-sustainable development. Non-sustainale development patterns can be recognized by various early warning signs. In the case of forestry, this means setting provisional targets, conditioned by time factors and implementing capacity and, after reaching those targets, by setting new ones for the next time period.

Is Sustainable Development a New Concept?

Agencies always had to deal with uncertainty. They always had to specify objectives (the "what" question), as well as clients, partners and beneficiaries (the "for whom" question). Especially if credit is involved, objectives should be set by the main actors: the recipients of assistance.

Sustainable development is not a new concept. Sustainable development focuses on the implementation of ideas that have been known for a long time (the Pinchot/Roosevelt conservation years in the United States and the von Carlowitz period in Germany). While we fully recognize the value of political rhetoric with a new twist, the fact is that the concepts of sustainable development have been well understood for some time. Sustainable development is not a new paradigm; it does not

offer new ideas. What is new and makes it a paradigm, is the general awareness of the urgent need to implement widely accepted principles. This aspect —the implementation of sustainable development concept— is the one that causes more problems to international assistance agencies. These agencies should not be spending a great deal of time searching for new definitions of sustainable development. Instead, they should be focusing on implementation issues. This focus would also bring about progress in refining concepts by making use of the experience acquired by recipients and bilateral and international assistance agencies.

Implementation: Moving Towards Sustainable Development

Improved implementation, in turn, implies examining policies and procedures related to: a) project and sector approaches used by international agencies, and b) personnel. Most international agencies operate based on project approaches. Some are beginning to use the sector approaches. If projects/programs and personnel are responsive to the basic needs of sustainable development, i.e., the "what" and "for whom" concepts accepted by the agency, then the agency is likely to progress.

A good example of an institution moving towards more sustainable development is highlighted by McGaughey (1990) who, referring to a speech by E. Iglesias (President of the IDB) said: "One of the concerns I have is that you cannot deal with this issue just by having a unit within the institution dealing with the environment. You cannot make environmental sensitivity permeate activities throughout the institution, and also try to influence the awareness of the other side, of those who negotiate with us in the governments, people in planning offices, ministries. It is a no-win situation, and unless you can establish a deep consciousness that this is an issue which you have to deal with, not only among those people who work on the issue, you are lost. To me, the most important thing is to try to sell these ideas, to try to make them permeate the Bank's structures and, at the same time, to have a dialogue ... (with) the countries."

If international and bilateral institutions achieve this degree of awareness about sustainable development, many of the past failures would not happen again: projects would be based on a holistic approach, structural adjustment programs would include consideration of social and environmental impacts, and there would be a better understanding of the

need to differentiate among lending conditions according to the different sectors, credit systems, time horizons and so on.

THE NEED FOR CHANGE IN THE POLICY FRAMEWORK

Policy Reform

There is an obvious need to reform forest policies. With few exceptions, existing policies have not led to an increased contribution of forestry activities to the economy, an expansion in the quantity and quality of reforested areas, greater income levels to communities and forest dwellers, or to reducing deforestation. Without policy reform, it is almost impossible to sustain projects even if they are technically sound, because conditions for efficient implementation are only present during the project life. There is a substantial degree of agreement among multilateral agencies that forestry and related policies need to be reformed in order to promote sustainable development.

The Path to Change

The present emphasis of financial assistance is on (World Bank, 1994):

- Forestry sector reform.
- Conservation of intact natural forests and livelihood alternatives for forest dwellers.
- Forestry plantations, mainly by rural communities.
- Integration of agriculture and forestry.

Sector studies and their associated policy reform prescriptions seem to conform a reasonable approach for achieving sustainable development and to optimizing the contribution of forestry activities to development. There are also various initiatives, such as the TFAP, which could be rescued. The concept of coordinating donor's activity is still valid, and a scheme that includes Sector Forestry Policy Reform is useful.

We propose to organize activities for Forestry Policy Reform, including those of the World Bank, other donor agencies and regional development banks, in a way that would facilitate progress towards achieving sound policy frameworks in the countries of the region.

International assistance must be reshaped to achieve sustainable development objectives. Necessary changes include:

1. A policy reform program that identifies and evaluates possibilities for domestic funding and complementary external funding of forestry activities for sustainable development.

2. A program implemented by private landowners and others —particularly in areas previously dedicated to cattle ranching or to rural development projects— for recovering degraded areas through reforestation and securing local community ownership.

3. The integration of forestry and agriculture in a new concept of rural development which would include resources available in microregions for the benefit of the rural poor.

4. Assigning value to forest resources and services through a broader understanding of natural forest management.

5. Developing and providing funding for a program which would allow rural people and local communities to capture adequate rents derived from value added through vertical integration. Agenda 21 could constitute an adequate framework for this program.

Continuity of Action

There is a continuing process involving the adoption of new initiatives and the abandonment of failed experiences. Many of the multilateral assistance mechanisms have been pushed as models of general application (import substitution/industrialization, land reform, green revolution, rural development, macroeconomic and sectoral adjustment, privatization and free trade; Bustamante, 1991; McGaughey, 1990). In the future, instead of trying to sell recipes, there should be more interaction with national institutions to generate models which would be better suited to national and local conditions.

There is also a constant abandonment of some initiatives to try new ones. The Tropical Forestry Action Plan had a clear rationale, including a assessment of country situations and a collection of projects to meet forestry development objectives. It is important to define relations between the TFAP, the National Environmental Action Plans (NEAP), the Agricultural SAPs and the various Forest Policy Reform initiatives. Parallel actions should be avoided: initiatives should be consistent and coordinated. The countries themselves should do much more to force the hand of international agencies to achieve a better degree of coordination.

Project by project and sectoral approaches are not mutually exclusive alternatives. Thus, in the case of TFAP, there are some clear project alternatives which do not need further discussion.

In order to gain experience and to give Policy Reform Programs a chance, it's important to underline some problems the TFAP had to face:

- The TFAP vision was too sub-sectoral, and did not consider interactions with agriculture and with other sectors. Forestry could have been present, as natural capital supporting agricultural development.

- Initiatives were centered on the state forestry institution, leaving out important actors. The TFAP aimed at designing strategies and at beginning with their immediate implementation through specific projects. **In reality most countries had very little absorptive capacity,** and weak institutions faced numerous legal and policy constraints, as well as an acute shortage of expertise.

Now the TFAP is struggling to survive and faces the competition of Sector Analyses and National Environmental Action Plans, which have no strategy for monitoring the different initiatives already under implementation and to introduce needed associated changes.

Policy transparency is a must. Policies and projects should favor mechanisms open to anyone fulfilling certain minimum requirements (not tailored specifically for a certain NGO or community), in order to move from specific assistance to more general processes. Behind every project there should be a possibility for extending the application of a particularly successful mechanism to a whole region or country (de Camino, 1989).

To generalize experiences, it's necessary to develop effective mechanisms for transferring appropriate resources to small farmers, to communities and forest dwellers, according to their own reality and constraints.

One of the conditions for reaching continuity of action is that assistance should not be used as a political tool to exert pressure on countries. In many cases, projects that have already started are interrupted because the country is not part of the ideological sphere of the donor. Normally, projects and policy reform processes are signed agreements which should be fulfilled not only by recipient countries, but also by donors. Long-term commitments should be considered as seriously as international debt.

With some exceptions, donor countries and multilateral organizations have no experience in tropical forest management. International NGOs have no experience on the subject either. But this should not be a reason to avoid the subject, which is of such importance for developing countries. Efforts to prepare staff of the recipient country and of international agencies are not intense enough to allow them to solve future problems. Donors, multilateral organizations and countries need to begin implementing sustainable development activities and gain experience in its operationalization. We need to learn together.

Developing Partnerships

The way in which the international community intervenes in the sector's policy reform process must change. The donor community and the international NGO community should play a supportive (non-imposing) role in the countries of the region. The National/Local interface should be stronger than the Global/Local interface. We need to be equal partners.

The government should not be the center of gravity of forestry development. The Forest Service should not be the only counterpart agency for sectoral adjustment programs and projects in the forestry sector. Practical, non-bureaucratic mechanisms must be developed for considering direct beneficiaries and related NGOs as counterparts to international partners.

Furthermore, the legislature is never included as part of the dialogue, even though it should play a very active role in the policy reform process (Urioste, M., 1994). In some cases, this may be due to the fact that the legislature may take too long to secure approval of programs and projects to be financed with donor support.

The views and objectives of the recipient country and of the recipient communities should have importance in the policy reform process; it is necessary to operate within the boundaries of the possibilities of the recipient country. In many cases, the international community tries to impose its own objectives, condemning poor people to preserve forests and to continuing poverty. Flexibility and the search for alternatives which would make the forest valuable to the communities and countries involved are part of the solution.

In order to develop real partnership, the international community should be oriented to:

- Strengthening grassroots organizations and local NGO's on a sustainable basis.
- Working closer with the direct beneficiaries in a real, and not just cosmetic, form.
- Trying to institutionalize solutions to get access to land, funds andtechnical support; growing from specific projects to generalized approaches to be implemented in the whole country.
- Avoiding pushing countries to any type of "shock treatments," andimproving the timing of policy implementation (priorities and urgent actions required by regions, communities and countries are not the same as those of banks).
- Avoiding a subsectoral approach which, in the past, has isolated the forestry sector.

Including Efficiency, Equity and Ecological Considerations in Forestry Assistance

Approach

Some of the elements of a general approach for including efficiency, equity and ecology in forestry international assistance are:

1. For policy reform actions proposed by international institutions, environmental and social assessments should be required. There are many social and environmental externalities generated by sector adjustment programs that are only superficially discussed in reports. These reports tend to focus on short term effects which are superficially analyzed usually under considerable time pressure. Thus, an environmental assessment is necessary, not only at the project level, but also at the sector adjustment program level.

2. Considerable work aimed at devising compensation mechanisms for global externalities should be carried out. Panayotou (1994) has proposed at least twenty different mechanisms, some of which are already being used, and some that still need to be tried. Many of these mechanisms are oriented to financing sustainable development through domestic and international marketing of global benefits.

3. Many past initiatives were affected by a partial focus and were not linked to a policy framework that would answer the "what and for whom" questions. National, bilateral and multilateral organizations should have a more practical approach to sustainability in the sense that non-sustainable development activities should be avoided. Organizations should not put too much emphasis on absolutes, but instead on the incremental effect on sustainability of a given policy or project. If a tropical area is to be deforested (if current trends continue), policies could be devised to support the sustainable management of primary forests for wood production and thus affect deforestation trends. Non-sustainability would be avoided and the utilization of tropical primary forest for commercial purposes would not be a capital sin any longer. As shown by the experience in the region, restrictive policies which limit uses of the forest lead to deforestation. Another mistake is to try to solve forestry, agriculture, or preservation problems without having a proper perspective of their social and economic roots.

4. The policy framework should give high priority to investments in recovering resources that have been destroyed as a consequence of wrong policies and wrong lending projects, and to situations in which social and economic problems persist.

5. A given rural development area is a territory. In that territory, we find different kinds of resources: agricultural lands, forests, water, and

many others. Rural development should never be understood as agricultural or livestock development only. In the past, the lack of real integration between forestry and natural resource components in rural development projects led to substantial environmental and economic costs. In part, this is due to the preference of multilateral institutions in financing preservation and protected area projects as well as investments generating environmental services for the global community.

If forests exist in a rural development area, projects should consider alternatives for their efficient management, for the benefit, and under the control, of local communities. Projects should include a broader set of interventions including agricultural activities, cattle ranching, agro-forestry, silvo-pastoral systems, agroindustry, sustainable management of primary forests (which, otherwise, would be destroyed) for wood and non-wood products, forest industries, industrialization of non-wood products, ecotourism, preservation of forests for environmental services (provided compensation is granted), etc.

Forestry policies and projects can contribute to sustainable development provided that they:

- Involve local communities and indigenous people in their design and implementation.

- Design incentives for activities with positive environmental externalities.

- Integrate beneficiaries into the more profitable segments of the production function.

- Strengthen focal communities and local and national NGOs for the effective management and administration of resources. Education and training for old and new actors need to receive high priority. Absorptive capacity needs to be improved.

- Assign to the government the role of coordinating the formulation of norms and controlling their application. The private sector, NGOs and communities should focus on implementing policies for sustainable development.

- Operate under the principle that policy formulation and institutional change should be efficient and eliminate the old administrative ballast that made law enforcement bureaucratic and expensive.

Commercial management of tropical primary forests

The management of the tropical primary forests should be considered as a special case. Latin America has 918 million hectares of tropical forests on a territory of 1 650 000 000 ha (FAO, 1993). For many of the countries of the region, the tropical primary forest is an important resource. In many regions, primary forests are the only resources on which sustainable development could be based.

Avoiding financing commercial timber production or funding preservation initiatives does not increase the value of forests or the interest of governments and communities in managing and conserving them. Instead, it's advisable to develop good forest management examples. For a govemment it's difficult to finance preservation activities by making use of credit when no direct income will flow back to the government or communities.

Sustainable tropical forest management is feasible (de Graaf, 1990; Hutchinson, 1993; Finegan et al, 1993). The problem lies with the fact that most tropical forest management initiatives never were fully implemented. Forest management involves more that just the preparation of management plans: in fact, the way to deforestation is paved with forest management plans. Forest management implies the availability of silvicultural knowledge, human resources, industries, rational administrative procedures, markets, and international support. Tropical forest management has not failed: it has never been implemented. The solution is easy: planning must be fully implemented by the parties involved and during a period of time which would be long enough to generate results.

Many forestry projects focus on production but disregard market possibilities. Policy and projects should pay careful attention to marketing and economic aspects.

The sustainable management of natural resources must internalize external costs as well as the costs of ecologically sound management. In a market in which producers that do not manage forest resources compete with those that do, the latter will not have a chance of surviving financially. Tropical forest management can be improved by:

- Securing better prices for wood from managed forests.

- Designing incentives to the proper management or conservation of natural tropical forests. Since ecological services are not traded it is necessary to grant management incentives that would compensate producers for the value of environmental services provided by the forest. In this case, the incentive is not a subsidy, but a price for environmental services. It should be paid by the national and international communities which enjoy these services.

- Vertically integrating production of wood with its utilization and industrialization projects should include industrial processing components. The same approach should be applied to non-wood products.

- Designing participation mechanisms to involve communities and indigenous people in project preparation and implementation. It is not fair to confine local people to production processes with lower financial returns, allowing industries and tourism to take the larger portion of the pie. Such behavior is not consistent with sustainable development and especially, not consistent with its equity dimensions.

- Designing mechanisms for compensating communities and countries which would be willing to set aside areas for conservation and preservation purposes, and thus produce global environmental services.

- Having the courage to support, financially and technically, the sustainable management of tropical primary forest for the production of wood and other products. Greater access should be secured to programs such as the ITTO (ITTO, 1992). Innovative approaches should be adopted to grant forest concessions not only to large corporations but also to local communities and to establish joint ventures involving communities and the private sector. A policy of non-intervention or omitting certain actions would lead to forest destruction producing no immediate benefits for communities and countries.

The effective involvement of bilateral and multilateral assistance agencies in sound and flexible sustainable development processes would lead to better results than, for example, a process that ignores the commercial use of primary forests. The possibility of commercially managing tropical primary forests has not received the necessary focus in

international assistance. In our opinion, this is a typical case of international and bilateral agencies missing the point by not having an aggressive and positive assistance policy.

ASSISTANCE CONDITIONS

Needed Funds Versus Available Funds

A priority of Agenda 21 is to achieve developing country financing of sustainable development (Panayotou, 1994). However, the financing possibilities of the developing countries are limited. Global markets do not operate freely and developing countries are unequal partners, facing costs reaching US$500 billion per year due to protectionist measures imposed by developed countries. This figure can be compared with the value of international assistance which is only one tenth of that amount (UNDP, 1992). Eliminating trade barriers affecting developing countries would generate substantial funding for sustainable development.

• Forest area:	%
Developing countries:	57
Developed countries (including Eastern Europe)	43
• CO2 emissions from industrial processes and land use change:	
Developing countries	40
Developed countries	60
• Other greenhouse gas emissions from solid waste, industry and mining	
Developing countries	41
Developed countries	59

As mentioned, tropical forests produce —but do not receive compensation for— a variety of environmental services accruing to the global community. Carbon sequestration services, as compared with industrial emissions, are as follows (WRI, 1992):

There is an excess of natural carbon sequestration services in developing countries and an excess of emissions in developed countries. The forests in the South are sequestering a large proportion of emissions from the North. Large areas of already degraded lands in developing countries also could be used to sequester carbon. However, efficient mechanisms need to be designed to transfer funds to the countries of the South for conserving and expanding their forest area. International assistance has been falling short of needs in the south and of commitments agreed in ECO92.

A review of International Assistance for Development show that (UNDP 1992 and UNDP 1993):

- Developed countries are investing 0.35 percent of their GDP in development assistance, against the 0.7 percent committed in ECO 92. Only three developed countries are meeting their commitments.

- Latin America receives a small proportion of the assistance for development: only 0.5 percent of the GDP.

- None of the 20 most important recipient countries is in Latin America.

- Agenda 21 recommended a yearly investment of US$31 250 000 000 in forestry-based activities, of which US$5 670 000 000 should correspond to international assistance. Since 1991, the World Bank has invested US$1 300 000 000 worldwide, an average of about US$400 million a year. In the case of other donors, the situation is similar. All international sources of financing are far from meeting ECO92 commitments. Besides, total assistance is decreasing as large amounts are being transferred to Eastern European countries.

Obviously, financing is not the only restriction. Many of the problems are related to the countries' limited absorptive capacity. However, financing can be a constraint if external debt is taken into account in investments in sustainable development. Also, funds and time are needed to increase absorptive capacity. We can conclude that the general

picture of international assistance is not very encouraging. The forestry sector of Latin America is no exception to this negative picture.

An example is the case of long-term investments in restoring and managing natural habitats or recovering degraded areas, which may have an important potential for sustainable development and at the same time generate global services not traded in markets. It could be argued that this type of investments should be supported by bilateral and multilateral donors under conditions which should be very different from those attached to other types of initiatives.

Funding Conditions

Some conditions for financing the sustainable development of forests are:

- The international system should support the analysis of country capabilities to finance sustainable development through policy reform.
- Program and project planning horizons must be longer.
- Funds should be made available for compensating global services lent to the world community.
- This compensation could conform the basis for a system of incentives, for paying for the value of environmental services (price —the cost of sustainable management).
- The Global Environmental Facility (GEF) should be of the magnitude necessary to be able to fund project components which are not financially feasible, but essential to project sustainability in all cases. The GEF should operate as the sustainable development component of the regional and multilateral banking system.
- The level of interest rates should be analyzed further. If the objective is sustainable development, then we should attribute greater value to the future and reduce interest rates. In this context, differential criteria should be applied to different components, depending on the time frame and the nature of costs and benefits involved.

- In recent years multilateral lending has emphasized market stability and deficit reduction, and not poverty alleviation, equity, and the appropriate utilization of natural resources. Priority has also been given to the preservation of natural resources. Thus, there is a vacuum affecting programs and projects for the production of goods and services involving community participation and integrated, diversified, production.

- Projects must lead to the independence of the human resources involved. They must strengthen and institutionalize the technical expertise of beneficiary organizations. This should be an important component of international assistance and lending programs. Mechanisms such as Capacity 21 should begin to operate as soon as possible. Like GEF, Capacity 21 should be used to finance non-commercial type of organizations, building up the absorptive capacity of forestry and forestry-related institutions.

- Financial transfer mechanisms affecting small farmers, communities and organizations must be diversified and improved. Present systems are slow and contain impossible requirements such as financial guarantees, clear land tenure rights, overly complicated formats for project preparation, etc. Clearly, many of these mechanisms are not the responsibility of the multilateral agencies and therefore there is a need to work jointly with governments to improve them.

- Multilateral institutions are improving their environmental assessment procedures and moving from a project-by-project to sectoral approaches. Although this strategy is sound, it could lead to stopping many forestry projects until the moment the country meets sectoral requirements. A parallel process would be more appropriate. Alternatively, funding could be made available specifically for policy reform.

The classification of forestry projects according to their environmental impacts is much stricter than in the case of agricultural and cattle ranching developments that lead to deforestation. Impact evaluation procedures should be based on incremental analysis. Forestry projects should be compared with deforestation and not with the preservation of forest areas which if trends continue —are condemned to disappear anyway. The benefits of forestry programs from a sustainable development perspective would be apparent and programs would, therefore, be financed.

The recently published OECD Development Assistance Manual summarizes recommendations and principles, broad policy orientations and operational guidelines for official development (mainly bilateral) assistance. Some of the most outstanding lessons emerging from this review are the following:

1. International cooperation and, specifically, development cooperation, can only be as effective as the policy, economic and administrative environment in which it operates.

2. Implementation problems can be avoided and project success increased by strengthening project appraisal, achieving greater rigor in project selection, a clearer and more realistic setting of objectives, greater design flexibility, and faster adjustment when shortcomings become apparent.

3. Aid and lending policies should be concerned not only with individual projects, but also with sectoral and national policies. Lending policies should move from project development to program development. In addition, donor competition for attractive projects should be prevented.

4. A profusion of conflicting advice from a multiplicity of donors affecting the policy and programming dialogue is counterproductive. To be credible, advise should reflect a deep understanding of the local economic, social and ecological constraints and opportunities. It should also fully respect the recipient country political priorities, capabilities and needs.

5. Increasing procurement of efficiency and flexibility can yield substantial benefits to recipient countries in terms of project value and subsequent maintenance operations.

Some of the principles agreed on by OECD and the Development Assistance Committee are:

- The recipient government should have the main responsibility for coordinating international assistance.

- There is an urgent need for a closer cooperation between recipient governments, bilateral donors and multilateral agencies, as well as for improved donor communication and coordination.

- Recipient governments should be at the center of the process of international cooperation which should include participation of the stakeholders involved in the projects or programs.

- Greater use of local expertise and actions for strengthening capabilities. should be encouraged. The tendency to supply capital equipment on a highly subsidized basis, while failing to secure funding for recurrent expenditures on human resources, should be avoided. Within this framework, technology transfer and change should be carefully reviewed.

- It is essential to increase the synergy between economists, planners, and science and technology experts to build up and strengthen national capabilities.

CONCLUSION

Funding conditions demanded by development banks operating in the region are approaching those of commercial banks. There is a certain pride in the international banking system affecting the end of soft lending. Financing and lending criteria need to be reviewed in the framework of sustainable development. The role of forestry activities in the promotion of sustainable development also need to be examined anew: there is a need for new assistance conditions, following the principles of sustainable development in the preparation of programs and projects.

There are many social and environmental costs which are transferred to society and therefore society subsidizes these costs. In the case of many natural resources or forestry initiatives, various social and environmental benefits are not being financially compensated, therefore discouraging such initiatives.

Bilateral, regional and international development banking agencies should take steps to promote sustainable development. Funding trends

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CONDITIONAL LENDING EXPERIENCE IN WORLD BANK FINANCED FORESTRY PROJECTS

John Spears

INTRODUCTION

Inappropriate polices are important causes of tropical deforestation and poor forest management. Agreements made with borrowers to strengthen forestry policy form part of many Bank loans and credits. These agreements are sometimes formalized as covenants to create conditions necessary for project success. Covenants typically describe the nature and timing of actions to be taken by the borrower. They support and reinforce implementation agreements.

This review examines the record of covenants that support policy development in 33 completed forestry projects approved in the period 1975-1984 and a sample of 20 forestry projects currently under implementation. It examines covenant compliance as a contributor to project performance and assesses their usefulness as tools for promoting forestry policy reforms.

Covenants and Types of Policy Conditionality

Covenants employed to support forest policy development include three broad types of instruments: regulatory, financial and institutional. Examples are summarized in Table 15. Regulatory instruments apply the law and administrative rules to support an array of economic and environmental policies affecting the private sector. Financial instruments also affect mainly the private sector and include fees, taxes and subsidies used to influence land use. Institutional instruments include the provision of public management and services and other direct actions by the government.

COMPLIANCE WITH COVENANTS IN COMPLETED PROJECTS

This review included 16 social forestry projects that aimed principally to ensure adequate supplies of fuel wood and other forest products for

people living outside the forests, and 17 industrial forestry operations in natural forests or plantations. Eighty seven covenants related to policy reform or institutional development were reviewed. Full compliance was recorded for 49 covenants (56%), partial compliance for 22 covenants (25%) and noncompliance for 16 covenants (18%).

The rate of non-compliance was identical for social and industrial forestry projects (See Tables 16 and 17).

Table 15. Policy and Institutional Reforms that Influence Sustainable Management of Forest Resources and More Equitable Distribution of Forest Benefits.

Regulatory Instruments

- Land Tenure Arrangements and land use zoning.
- Legislation to protect traditional property rights and access to forest land.
- Legislation to protect intellectual property rights to germ plasm.
- Trade regulations.
- Timber concessions, license agreements and penalties for non-compliance.
- Legislation to protect biodiversity reserves and national parks.
- Global conventions with implications for forest resource management.

Financial Instruments

- Removal of taxes and subsidies that encourage deforestation.
- Revenue sharing contracts with local communities.
- Setting stumpage fees and timber harvesting or export taxes at levels that capture economic rent.
- Financial incentives for tree planting.
- Removal of trade tariffs that constrain developing country trade in forest products.
- Incentives for forest management practices that favor sustainable management.
- Incentives to encourage small-scale wood-using enterprises.
- Incentives to encourage integration of forest industries.
- Incentives for off-farm employment.
- Incentives for marketing non-timber forest products.

Institutional Instruments

- Mechanisms to promote effective dialogue with NGOs.
- Mechanisms to promote integration of forestry, agriculture, energy, industry and environmental policies.
- Support to socioeconomic, marketing, agroforestry and forestry research.
- Studies of forest values and tradeoff between alternative forms of land use.
- Studies of population dynamics and the impact of migration on forests.
- Support to forest education and training.
- Strengthening Public Forest Administration.
- Strengthening forest extension services.
- Public management of timber lands.
- Mechanisms to strengthen Forest Buffer Zone management around Protected Areas.
- Monitoring private industry logging and forest industrial operations.

This study could not establish a clear relationship between covenants related to policy reform and overall project performance. In cases of compliance, it would be spurious to argue that policy reforms have been adopted simply because loan covenants were applied. Many factors contribute to fulfillment of agreements. However, situations exist where covenants have been clearly instrumental in tipping the scales in favor of policy reform. This review indicates that covenants have had a positive effect in situations where internal advocates of policy reforms face difficult political or other constraints to their introduction, and that they benefited from the influence that the Bank was able to apply through policy dialogue, research studies and lending conditions.

During the period 1975-1984, covenants were used with positive effect to cover a range of regulatory fiscal and institutional policy reforms (as summarized in Table 17).

Non-compliance with loan covenants was most common in fiscally complex or politically sensitive situations where there was uncertainty about the social, fiscal and or environmental impacts of suggested reforms, and where there were strong government or commercial interests opposing them. In addition to the record of covenant compliance, several project performance and audit reports noted cases in which failure to address policy issues led to weaknesses in project performance (Table 17 also summarizes these situations).

Table 16. Summary of Covenant Use and Compliance, pre-1985.

	Type of Covenant							
	Regulatory		Financial		Institutional		All	
	No.	%	No.	%	No.	%	No.	%
Number of Covenants	25	100	28	100	34	100	87	100
Full Compliance	15	60	12	42	22	65	49	56
Partial Compliance	4	16	11	39	7	21	22	25
Noncompliance	6	5	5	18	5	15	16	18

Table 17. Analysis of Covenant Compliance and Incidence of Weaknesses in Project Performance and design.

Type of Covenant	Number of Cases of Compliance	Number of Cases of Non-compliance	Number of Additional Projects in Which Failure to Address These Policy Issues a Weakness In Was Cited As a Project Performance
A. Regulatory			
Requirement that government implement a forestry sector review	2		8
Legislative and tenurial reforms	3	2	13
Securing local people's participation in forest conservation and management	2	2	7
Removal of legal/trade tariff constraints to efficient harvesting and/or expanded forest products trade	2		
Institutional restructuring to introduce greater efficiency into government managed forestry operations	5	2	6
B. Financial			
Elimination of government subsidies on tree seedling sales	5		4
Raising of stumpage prices	7	3	5
Sharing of project revenues with local communities	2	1	4
Earmarking of counterpart funds	2	3	7
Study timber pricing	1		

Table 17. (Cont.).

Type of Covenant	Number of Cases of Compliance	Number of Cases of Non-compliance	Number of Additional Projects in Which Failure to Address These Policy Issues a Weakness in Was Cited As a Project Performance
C. Institutional			
Strengthening of government administrative Forest Service for supervising management of forest operations	12	5	
Improving forestry research, extension and technical quality of forest operations	6	2	11
Implementation of socioeconomic and/or market research studies to test people's perceptiveness of project usefulness	1	15	

FORESTRY LENDING SINCE 1985 AND THE EVOLUTION OF FORESTRY RELATED COVENANTS

Bank lending for forestry between 1978 and 1985 focused on social forestry, support for agroforestry, and strengthening of government forestry support services. Lending also supported industrial forestry. In the period 1985-1994, forestry lending underwent a radical shift and loan covenants have evolved quickly in support of these changes. Covenants are being employed in ongoing projects to support expanded community and private sector participation in forestry; conservation of protected areas; benefit sharing with local communities; containment of forest encroachment; forestry research and extension; improved technical performance of forestry; public capture of economic rent from forestry; and monitoring of deforestation. Given their newness, it is premature to assess their effectiveness.

CONCLUSIONS

Where covenants are unlikely to be effective, alternatives need to be found to promote policy reform. Uncertainty about the likely impact of policy-related covenants has been a major influence on government reluctance to press ahead with policy reforms. More attention to policy research during project preparation and appraisal and policy dialogue with stockholders could significantly help to overcome this constraint.

Other options include support for non-governmental organizations to enlist their support in raising awareness of the consequences of failure of reforms; support for regional policy seminars to disseminate experiences of policy reform; collaboration with other international factors to address sensitive issues; building on voluntary commitments made by countries to support international conventions; and collaboration with the Global Environmental Facility to mobilize concessional funds to support forest conservation for global benefit.

Attention should be given to development and application of improved indicators of project performance, outcome, and effect and their use in the determination of covenant compliance and project performance. Monitoring and evaluation procedures for Bank financed forestry projects focused mainly on disbursement rates, achievement of

physical targets, and staff recruitment issues. They provided an inadequate basis for assessing the impact of projects on key issues such as poverty alleviation, sustainable conservation and development of forest resources and the environment.

ACRONYMS

AFP	Administración Forestal Pública
AGUADEFOR	Asociación Guanacasteca de Desarrollo Forestal (Costa Rica)
AID	Agencia para el Desarrollo Internacional
ALC	América Latina y el Caribe
ALMG	Academina de Lenguas Mayas de Guatemala
ASDI	Autoridad Sueca para el Desarrollo Internacional
ASEAN	Asociatión of South East Asian Nations
BID	Banco Mundial
CAF	Cerfificación de Abono Forestal
CAFA	Certificación de Abono Forestal por Adelantado
CEE	Comunidad Económica Europea
CEPAL	Comisión Económica para América Latina y el Caribe
CIF	Cost, insurance and freight= costo, seguro y flete
CNP	Coeficiente de protección nominal
CNP	Consejo Nacional de la Producción (Costa Rica)
CPE	Coeficiente de protección efectivo
ENAC	Empresa Nacional de Almacenamiento y Comercialización (Ecuador)
FAO	Organización de las Naciones Unidas para la Agricultura y la Alimentación
FDF	Fondo de Desarrollo Forestal
FECAFOR	Federación Campesina Forestal
FMI	Fondo Monetario Internacional
FOB	Free on board= Libre en cubierta del barco
FOE	Friends of Earth
FONAFIFO	Fondo Nacional para el Financiamiento Forestal
FSC	Forest Stewardship Council
GEF	Fondo Mundial del Ambiente
GEF	Global Environmental Facility
IDA	Instituto de Desarrollo Agrario (Costa Rica)
IICA	Instituto Interamericano de Desarrollo
IIDEMAYA	Instituto de Investigación y Desarrollo Maya
IITO	Organización Internacional de Maderas Tropicales
INCRA	Instituto Nacional de Colonización y Reforma Agraria
INRENA	Instituto de Recursos Naturales (Perú)
IRENA	Instituto Nicaragüense de Recursos Naturales
ISO	International Standards Organization
ITTA	Acuerdo Internacional sobre Maderas Tropicales
MAGA	Ministerio de Agricultura, Ganadería y Alimentación (Guatemala)

ONG	Organización No Gubernamental
PAF	Plan de Acción Forestal
PAF-MAYA	Plan de Acción Forestal Maya
PAFT	Plan de Acción Forestal en los Trópicos
PEE	Pérdida de excedentes económicos
PNB	Producto Nacional Bruto
PNUD	Programa de las Naciones Unidas para el Desarrollo
SEP	Subsidio equivalente al productor
TIERRA	Taller de Iniciativa en Estudios Rurales y Reforma Agraria
TLC	Tratado de Libre Comercio de Norteamérica
TPE	Tasa de protección efectiva
TPN	Tasa de protección nominal
UICN	Unión Mundial para la Conservación de la Naturaleza
UNAG	Unión Nacional de Agricultores Ganaderos
UNCTAD	Conferencia de las Naciones Unidas sobre Comercio y Desarrollo
USAID	Agencia para el Desarrollo Internacional del Gobierno de los Estados Unidos
VPN	Valor presente neto
WRI	Instituto de Recursos Mundiales
WWF	Fondo Mundial de Vida Silvestre

This book was printed
at IICA Headquarters
in November 1995, with a press
run of 750 copies.
The original version was
published in Spanish.